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LECTURES

ON

COMPARATIVE ANATOMY AND ANIMAL PHYSIOLOGY,

DELIVERED BY

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LECTURE VIII.

ON THE ORGANS OF SUPPORT OF THE ARTICULATED CLASSES OF ANIMALS, PROVIDED WITH ARTICULATED MEMBERS; VIZ. MYRIAPODA, INSECTA, ARACHNIDA, AND CRUSTACEA.

We come now to consider the skeletons of the articulated classes of animals, those especially of that great division of the animal kingdom which possess articulated members. This division of our subject comprehends the skeletons of those articulated animals which more or less resemble the scolopendra and the various forms of the *myriapods*—the skeletons of *insects*, so numerous and diversified in their forms; the skeletons of the various forms of scorpions, spiders, and other animals, which resemble them, and are thence denominated *arachnida*; the skeletons also of the most elevated class of articulated animals with articulated members—the *crustacea*.

You have seen, in examining the skeletons of the lowest forms of animals, that notwithstanding the simplicity of the whole of their structure, they were yet possessed of the power of separating from the surrounding elements immense quantities of solid earthy matter to protect their bodies. We have observed a transition from the forms of animals which compose the first division of the animal kingdom to that lengthened form which constitutes the most marked character of all the articulated classes,—from the lowest of the entozoa upwards to the most perfect crustacea. The articulated form of the body, indeed, we have seen gradually becoming more and more marked as the skeleton became developed and consolidated,—from the tænia and similar genera belonging to the very first class we considered—the entozoa—to the most elevated forms of red-blooded worms.

The whole exterior of the body in the classes we are now speaking of is covered with a more solid skeleton. It is an exterior skeleton. It gives attachment to the muscular apparatus; it serves for the protection of the soft parts of the body; it gives form to the body; it is consolidated by earthy matter; it possesses, therefore, all those essential characters by which we distinguish the skeletons of the highest classes of animals. It is placed upon the surface of the body; it is thrown out, in fact, on the surface of the true skin; it is placed between the true skin and the epidermis. It is exuviable, that is to say, we find it periodically thrown off entirely from the body, in consequence of its unorganised nature, and its entirely enveloping the growing soft parts enclosed within.

Now with regard to the general composition of this hard matter covering the surface, not only of the trunk of the body, but of all its appendices, the organs of the senses and those of mastication and of progressive motion, we find here that there is a base very much resembling the woody fibre of vegetables. It was long conceived to be analogous to horn—to a substance we find so common in the vertebrated classes of animals, but it is found to be a substance possessing peculiar properties, and closely allied to the woody carbonaceous fibre of vegetables. The French chemists have called it *chitine*, and have found that about a quarter of the hard skeleton of insects consists of it. When obtained separate, this chitine is white, contains no nitrogen, burns without melting, and leaves

an ash which preserves the form of the organ. It dissolves in nitric acid, aided by heat, without producing a yellow colour. When we hold the elytra of a beetle in the flame of a candle, they burn with considerable flame, from the quantity of animal matter in them, but their form is not altered. When held a sufficient time in the flame they become red-hot, and gradually consume entirely away. This *chitine* appears to be a constituent of the skeleton of all the insects of LINNÆUS, or of all the articulated invertebrata with articulated members, and it is not improbable that in the exterior covering of the segments and jointed parts in many of the higher annelides, where the density and lustre are often considerable, the same consolidating material will be found. This substance imparts firmness and elasticity to the exterior covering of articulated animals; but to strengthen the coverings of the larger forms of these animals, there are earthy matters deposited in this superficial skeleton. The phosphate of lime is a common ingredient in the surface of these articulated animals. Indeed in the class of insects the phosphate of lime is found without a trace of the carbonate; but in the solid shells, which you here look upon, of the crustaceous animals, as of these large cray-fishes, lobsters, and crabs, there is, along with the phosphate, a still larger proportion of the carbonate of lime. The composition, indeed, of these skeletons of the crustacea is more complex than would be implied, merely by this composition of *chitine* and the two earths I have mentioned. I now place before you the analysis of them as given by CHEVREUL:—

Phosphate of lime	5. 22
Carbonate of lime	47. 26
Phosphate of magnesia and iron ..	1. 26
Chloruret of soda and salts of soda	1. 50
Water and animal matter	44. 76
	100.

From this analysis of CHEVREUL of the shelly covering of the crustacea, you perceive that the carbonate is infinitely greater in proportion than the phosphate of lime. Now the texture of these crustaceous skeletons is observed not to be of that fibrous character which we see from fishes upwards to man, but it is deposited on the surface of the body in a homogeneous compact layer, varying in thickness in the different orders, and, indeed, in the different species of the same order.

We observe that these skeletons are exuvinable; that, therefore, although they cover the whole surface of the body, enveloping not only the trunk but the extremities, as so many solid tubes, yet the animals are not thereby prevented from growing, but that, by throwing off these rings, and forming a new layer of rings to encompass the soft parts, the whole structure proceeds in growth and life. We find this to be the case in all the classes of these animals. This is very different from the character which we observe to be so common in the molluscous classes. At first it strikes us as a remarkable difference between the articulated divisions of the animal kingdom and the molluscous classes. The molluscous classes throw out also on the surface of their bodies massive skeletons, composed of the carbonate of lime, between the epidermis and the true skin, like those before us; but in place of throwing them off from the body altogether, they continue to excrete layer after layer, and to keep the old layers still in connexion with the new. This they are enabled to do from the open and flat or concave form of the old skeletons. They do not require to slip it off altogether, but, from its open form, they may still keep it in connexion with the new and more extended layers that are formed within. It is obvious, however, that this class could not be invested with skeletons which, like tubes, closely envelop the whole surface of the body. Those must be got rid of. We observe that they are, therefore, composed of numerous pieces, which may be conveniently thrown off by means of their joints, or by breaking them, from all parts of the body,—from the trunk, from the head, and from all the external organs. The mode of throwing off the large carapax, or cephalo-thorax, in the crustaceous animals, is well illustrated by this specimen of portunus, which I picked up on the coast of Cornwall. The animal is in the act of escaping backwards from the shelly covering — the carapax or cephalo-thorax,—and you will see the great size of the fleshy body, which is half out of the carapax, compared with the size of the shell which it is throwing off. But the casting of these coverings of the crustacea from the external parts, the legs, the maxillæ, the palpi, the antennæ, the eyes, the trunk, and the caudal appendices, and even from the interior of the stomach itself, is familiar to you, from the numerous minute accounts which have been given of this process, and we observe the same in all the stages of the insect's metamorphoses, and in all the classes of articulated animals.

Few parts have been more carefully studied than the structure of these articulated skeletons, and scarcely any exhibit greater uniformity of plan amidst all the modifications of outward form. The com-

position of these hard parts has been most studied in the class of insects, in which we generally perceive thirteen rings or segments surrounding the whole trunk of the animal, including the head (*R* 2, *a*), the thorax (*R* 2, *b*), and the abdomen (*R* 2, *c*). These segments begin by being equally developed from the one end of the animal to the other, as you see in the larva state of the insect (*R* 2), and in the larva form of the *scolopendra* (*R* 1) and other myriapods. These rings, or segments, assume a larger development in certain parts of the body, in consequence of the increased size of the contained muscular, nervous, and other soft parts. Thus in the adult insect, three of the segments (*S* 1, *b*) immediately behind the head, become large in consequence of their containing many of the soft parts connected with the three pairs of legs and the wings. This enlarged part of the body is called its thorax, and in the arachnida it consists of four segments, in consequence of there being four pairs of legs. But in the crustaceous animals, where there are generally five pairs of legs, you observe that this region of the body consists of five enlarged segments.

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On looking at the surface of these large pedigerous segments in the perfect insect, we perceive numerous lines which mark the limits of the several elements or pieces of which each segment is composed. In analysing a segment, as in analysing a vertebra, the most complex form of the part must be sought for, in order that we may arrive at the knowledge of most of its elements. It is thus that we expect to arrive at a knowledge of the cranial vertebræ in their most complicated form, and to understand the true nature of other vertebræ in their simpler forms. Now in naming the elements of one of these segments of articulated animals, the thoracic rings of insects have been selected, as affording the best key to their structure. As not only are these elements of the segments anchylosed together, but also the segments themselves of the thorax, to give firmer attachment to the muscles of the wings and legs, there is considerable difficulty in determining the precise limits of the component elements, and much diversity of opinion as to the number in a single segment. In the tergum or dorsal surface of the second thoracic segment of the *bombix pavonia major*, four elements are observed placed in a longitudinal order, and it is not impossible that a corresponding number may exist originally on all the four surfaces or aspects of that single segment. These dorsal elements of the mesothoracic segment (*S* 2) are called *præ-scutum* (*a*), *scutum* (*b*), *scutellum* (*c*), *post-scutellum* (*d*). On the pectus, or ventral aspect of the same segment, are seen four elements (*S* 3), three of which are double; those in pairs are, the *parapteræ* (*a*), *episternum* (*b*), and *epimera* (*c*), and the *sternum* (*d*) is single on the median plane.

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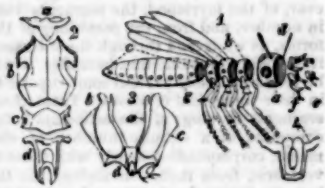

The head itself of insects and other articulata is composed of many pieces, which are either elements of the same segment, or several segments compacted together, as in the thorax. Carus and Audouin recognise only three distinct segments in the insect's head (*S* 1, *a*, *f*, *e*), while Straus, from the number of appendices developed in that region, imagines it to be composed of seven approximated segments. The chief differences among articulated classes, arise from the modifications of the segments towards the anterior extremity of the trunk, and the differences of the orders from the modifications of the appendices developed from the sides of the segments. These appendices are almost entirely in the form of similar feet in the myriapods. In insects two anterior pairs are in the form of mandibles and maxillæ, and in the crustacea six pairs have assumed that form, which is the greatest deviation from the uniform simple structure of the annelides.

We are led then gradually, as I have remarked, to these most elevated forms, by considering the skeleton and hard parts of the annelides, and the simpler worms. We already observe the segments becoming developed; those surrounding the trunk of the body, and acquiring a pretty firm texture, so as to produce manifest articulations. The bristles or appendices developed from the body of the red-blooded worms, though frequently solid, that is, without an internal tubular cavity, are also often tubular. The same lengthened and equal form of the body which you perceive in the red-blooded worms, you perceive again in the larvæ of

insects, and in the myriapods (*R*). You perceive that these segments in the myriapods (*R* 1) are nearly of equal development from the anterior to the posterior parts, and that the developments upon their sides are organs which are remarkably similar throughout the whole length of the body, the tubular-jointed extremities, which are the only organs of motion. Upon counting the number of segments which involve the bodies of the myriapods, frequently it has been observed that they are multiples of 13, which is the normal number on the body of insects. According to the age, however, of the myriapod, the segments vary in number, and from the constancy of the forms, as we ascend through these classes, it is highly probable that hereafter it will be found that they present some regularity in their numerical relations. From these segments or rings of the articulata being composed of a definite number of elements, corresponding nearly with those of vertebræ, from their containing, like the bones of vertebrata, the phosphate of lime, from their forming a column of moveable rings, and from their giving attachment to the muscles and protection to the nervous system, they have been compared to the vertebral column, and the articulated classes have thus been thought to lead most directly to the vertebrata. These analogies, however, are more specious than real, and they are not accompanied by close analogies in more important systems.

Now we have observed that these parts envelop the nervous system. This is an important analogy. You will observe, however, that besides the nervous system, they envelop all other parts of the body; they envelop the organs of digestion, of generation, of respiration, and the other organs. This is what you would expect; it is the nature of the skeletons of the invertebrated animals to be disposed thus, for the most part at least, on the surface of the body, protecting all the organs.

When we examine the disposition of these so-named segments, in insects for example, we observe that they are conveniently divided into three great groups, one embracing the organs belonging to the head (*S* 1, *a*), another division embracing the organs considered as belonging to the thorax (*S* 1, *b*), and another part embracing those organs which belong to the abdomen (*S* 1, *c*). These segments develop from their sides appendices; and wherever organs that require mobility in their parts are covered with a dense covering, or contain a solid part through their interior, they must necessarily be jointed. When we come to examine the vertebrated classes of animals, we shall see that appendices are developed from the central column in the form of arches; for instance, the lower jaw may be regarded as an arch hanging from the sides of one of the cranial vertebræ. The os hyoides is another arch hanging down from the temporal bone, part of the cranial vertebræ; so we find with respect to the scapular arch of bones, the ribs, and the pelvis; these are all appendices at first (as in fishes), developed in the simple form of ribs from the sides of the vertebral column. When we look at these appendices developed in the articulated classes from the sides of the column of segments, we find that they are bent in such a direction downwards, that they leave the circulating and the digestive and other abdominal organs in the upper part, and the nervous columns in the lower and most protected part, with the motor above the ganglionic nerves; for in all the articulated classes of animals, these nervous columns run in this relative position along the abdominal or lower surface of the body. So that in order to place all these systems in the position they occupy in the vertebrated animals, we have only to invert the body in the manner I now show you, and bend the legs of this cray-fish, or of this lobster, backwards, so as to place the curved back of the animals next the ground. You have now, you perceive, the motor and ganglionic columns in their vertebrate position, running along the middle of the back, the respiratory organs hanging down from the dorsal part, the intestine in the fore part of the abdomen, the heart in the fore part, between the branchiæ, as in fishes, and all the parts which before appeared transposed have now assumed the position they occupy in the vertebrated classes. Hence we understand the interesting discovery made some time ago by that acute zootomist Herold, that in the arachnida and crustacea, the yolk-bag, or umbilicus, opens into the intestine on the back of the animal, and not on its abdominal surface, as in the vertebrated classes. If you place the lobster in this position on its back, the analogy with the higher animals is remarkable, when you examine the gills, the heart, and other thoracic viscera, with all the organs of the body. It is partly on this account that some have fancied an analogy between these jointed appendices, which you see developed from this invertebral column, as organs of progressive motion in those articulated animals and the ribs of the vertebrata. The use to which these rib-like appendices is applied, has staggered some, however; they have thought

that although the ribs of the vertebrated animals possess mobility, they serve for respiration and not for progressive motion. When we examine the motion of the ribs of the serpents, and the action which they have upon the abdominal scuta, you will see that in them they are not fixed by a sternal apparatus, but are so many freely moveable feet, like those of a centipede, and serve for the progression of the serpent in creeping. It is on this account that in the serpent they have such a free articulation at the extremity of the short transverse processes of each vertebra. Look to this skeleton of the flying dragon, the *draco volans*, and you will observe that its ribs are extended out in straight lines from the body, and have connected with them a fold of the integument like a parachute; they are there distinctly organs of progressive motion; so that this is not altogether a proof of those jointed members of articulata not being analogous to the ribs or primary arches of the central column of vertebrata.

To save time and avoid repetitions, as well as to point out striking analogies, I shall take the whole of these condylopod classes at once. The trunk of the insect's body is conveniently, and, for the most part obviously, divided into, the *head* (*S* 1, *a*), the *thorax* (*S* 1, *b*), and the *abdomen* (*S* 1, *c*), which are separated from each other by deep indentations. It is from the deep indentations between these regions, indeed, that they have got the name *insecta*, and that the Greek terms, *entomology*, *entomologist*, and others, have been derived. This great cephalic segment is considered, as I mentioned before, to be an aggregate of at least three segments (*S* 1 *a*, *f*, *e*), which enclose the first two pairs of ganglia, and give attachment to the organs of the senses and of manduction. To the head, then, are attached the two compound eyes, and the three simple *ocelli*, the two long-jointed and variously-formed *antennæ* or feelers (*S* 1, *d*), the labrum and labium, or upper and lower lip, the upper pair of jaws or mandibles, the lower pair, or maxillæ, the *lingua*, and the palpi of the jaws. Now almost all these parts are liable not only to change their form in different classes and orders, but to change entirely their use or function.

It is at the bases of these antennæ, which are four in number in the crustaceous animals, that we find the organs of hearing. You will observe a large circular projecting aperture, covered only by a membrane at the base of the large outer pair of antennæ, in this cray-fish; the same in this lobster; and the thread in the specimen which you see here, passes through these circular openings, which are the ears of these crustacea. These are the vestibules,—the only parts of the organ here developed. There is here the simplest form of the ear—a simple vestibule, and an aperture is observed on the outer surface, covered by a membrane—the vestibular membrane, analogous to the *fenestra ovalis* of the human ear. Here there is yet no osseous substance developed within the organ. There are no semicircular canals developed; no cochlea, no tympanum, no exterior concha, but the simple central part of the ear, and this is its position. These antennæ are jointed organs of sense, and on casting the eye over the insects and figures before you, you will see the infinite variety presented by these organs in that single class of insects. They present the zoologist with important, though most minute, characters for classing them into genera and other subdivisions. The reasons of the peculiar forms of the antennæ in each separate species is far from being yet known, for the peculiar function to be performed is yet a matter open to inquiry. There is no doubt, however, that each form, although so much diversified, has a relation to some necessity of the living animal. They are jointed organs, and all those jointed organs are covered externally by the same form of material which covers the rest of the body. The numerous muscles which are to move every joint in them, are placed in the interior of the joints. In the lower part of this first segment, we find, in different classes of articulata, a variable number of maxillæ and mandibles (*S* 1, *f*, *e*). Those maxillæ, which are jointed organs, moving transversely, covered by the skeleton, have attached to them also jointed organs to their outer margins, which are organs of sense, and are denominated *palpi*. We have thus six pairs of organs, which move laterally, attached to the sides of the mouth in the crustacea. The innermost pair, as in insects, are the massive strong mandibles which are moved by very powerful muscles passing up to be inserted into the upper and back part of the head. The next two pairs are maxillæ, and are more constant in their form and use than the three pairs which succeed. The outer three pairs are the feet-jaws, which are remarkably convertible in their forms, particularly the two outer pairs. It is by studying the metamorphoses of all these convertible appendices, developed from the sides of the segments, that we come to perceive that the most dissimilar forms of articulata consist of the same parts.

The compound eyes of crustacea and insects are, for the most part, composed

of numerous distinct eyes closely approximated; sometimes thousands of them are grouped together, forming one large eye; but each of those minute separate organs has its own interior structure; it has its own nervous expansion and filament, its choroid, its lens and sclerotic, but we shall examine that organ hereafter.

From the constancy with which you observe the pairs of appendices developed from the sides of all the segments in the succeeding parts of the body, it is thus highly probable that this first segment is not to be considered as one simple segment, but that it originates from the coalescence and anchylosis of many elements and separate segments, of which all those parts are separate appendices, developed from their respective sides (*S* 1, *a*, *f*, *e*).

The segments of the whole body develop from their sides appendices, and those appendices vary remarkably in their forms in the different classes of articulata. We see what is still more remarkable, that those various and distinct forms of appendices are changeable in their form, and convertible into each other; that, in place of there being the same number of maxillæ throughout the crustacea which you observe in the lobster, in the crayfish, and others, these maxillæ change their form, and become more like feet like the legs that are placed behind them. They are thus convertible into each other in their form. That is a very important circumstance, because we find it not only enables us to trace analogies of nature, when it appears the most diversified in outward form, but it shows a remarkable constancy preserved in the number and relations of those parts. In one of these articulated animals, these lateral appendices may be developed for the purpose of progressive motion through the water, on the ground, or through the air, as they may be developed in a particular region of the body for the attachment of the ovæ, or for holding the branchiæ, &c., and still these appendices have changed only their form, and not their nature or their relations.

We find that these appendices around the mouth are thus convertible into various other forms. From this circumstance it is further probable that this first segment is really composed of the elements of many segments anchylosed together. This is rendered more probable from observing that this anchylosis of segments actually does frequently take place; that in the crustaceous animals several of the segments which we know to have been originally distinct segments of the thorax, have united together, so that you would have a difficulty in tracing their original separation, constituting, in fact, the *cephalo-thorax* which you find in the *crustacea* (*T*, 2), and here again in the *arachnida*, (*T* 1, *a*).

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We see the same in the thorax of insects. The term "insecta" is taken from the divided form produced by the doubling and indentations between the three great divisions of the body, the head, the thorax, and the abdomen.

Now the second region of the body of insects is composed of three unequally-developed segments. Those three segments (*S* 1, *b*) give origin to different appendices for progressive motion; but, for distinction sake, the first of the rings of the thorax immediately behind the head is denominated *pro-thorax*, the second *meso-thorax*, and the third *meta-thorax*. These are the names which are now given to the three segments which unite to form the middle region of the body,—this having now become a study which is prosecuted with great diligence in France, particularly by Audouin, Edwards, Straus, Dufour, and others.

This region of the thorax is the part which, in insects, gives attachment to the organs of progressive motion. The first of these segments gives attachment to the first pair of legs. Those legs consist, first of a haunch, generally composed of two pieces, then of a femur, then of a tibia, and last of the several joints of the tarsus, generally terminating by curved hooks, two or three in number. These are all the parts, the organs of motion, that come from the first segment or the *pro-thorax*.

The next segment of the thorax, however, gives origin to more than this; it gives origin to the second pair of legs, corresponding in parts with the former pair. In addition to this there is developed in insects from the upper part of this *meso-thorax* or second segment, a wing upon each side. Thus, then, the *meso-thorax* differs from the *pro-thorax* in giving attachment to two kinds of organs of motion,—two organs from each side,—one leg and one wing. The last division of the thorax gives attachment to the same kind of organs as the second segment. The *meta-thorax* gives attachment to the third pair of legs and the second pair of wings.

Now it would occupy a great deal of time, and would be almost foreign to this

part of the course, to enter further into this inquiry; but if ever you come to study entomology separately from the anatomy of these animals, you will find that the degrees of development of the thoracic segments, and of their appendices, is a key to the principal outward differences among insects. Where in insects, for example, the outward wings, the first pair which cover the soft membranous wings, are but little used in progression, as in coleopterous genera, the first and third segments of the thorax are large; it is found that the *meso-thorax* has, however, acquired a small development for the support of these elytra. In dipterous insects, where the anterior pair of wings have alone become developed, the *meso-thorax* is large for their support, and for the muscles which move them, and the other two segments of the thorax are remarkably small. In hemipterous and orthopterous insects, it is the *pro-thorax* that is highly developed. In the hymenopterous insects the second segment of the thorax is large, and the same disproportioned development of the *meso-thorax* is seen in the lepidopterous families. The *meso-thorax* and the *meta-thorax* are much larger than the *pro-thorax* in the slender-winged genera of neuropterous insects. Thus the development of the thoracic segments is exactly proportioned to that of the parts they are to support, and to the importance of these lateral appendices. The common fly is a dipterous insect, and has only the anterior wings developed. Now if you had not the wings to examine, but only the thorax, and you desired to know whether the pair of wings (there being but one pair) which the animal had lost was the first or the second, you might judge of this even by the increased size of the meso-thorax. And thus from the relations which exist between those parts, you might judge of parts that are absent or lost by the forms of those that are preserved, as is commonly done with the bones of quadrupeds where the relations of all the component parts have been more studied, and are better known. The wings of insects are thus supplementary appendices of two segments only of the body, and we find innumerable red-blooded worms which have also two pairs of appendices developed from each segment for progressive motion.

You will, however, frequently find that in place of this obvious division into three thoracic segments, you can scarcely trace the anterior and the posterior segments. The first segment of the thorax is the segment generally enumerated as the second of the whole body, although perhaps the anterior segment or the head is an aggregate of many. It is important to observe that the segments of the thorax coalesce, both in insects and arachnida and also in crustacea, that they form a solid mass by their junction, and that we have a difficulty in discovering the original elements of the segments or the segments themselves, for the same may have taken place in the head.

Now the posterior division of the body comprehends in the *insects* the remaining nine segments *(S 1, c)* of the whole thirteen; these embrace the organs most important to the preservation of the individual and of the race—the organs of digestion, and the organs of generation. Composed originally of numerous distinct elements of each segment, we find those elements frequently to unite, excepting that the lower and the upper have an interstice between them, which allows of considerable motion in the lateral part of the abdomen, for the motions necessary in respiration. The respiratory organs of insects are *trachea* that ramify through all parts of the body. They open on the sides of the segments by little holes, which are denominated *stigmata*, or *spiracula*, or *pneumostomata*. Frequently we observe that even the abdominal segments give origin to appendices; but those are for the most part extremely small compared with those developed from the thoracic segments. In the myriapods and in the crustacea the abdominal segments give rise to organs not only large, but often highly important for progressive motion, or respiration, or the attachment of the ova. We observe thus that there is a great symmetry; that there is a great regularity in the development of these parts throughout the articulated classes. The disparity which is at first apparent in looking at such a short-tailed decapode as this grapsus or portunus, and such a long-tailed decapode as the cray-fish I hold in my hand, can, in fact, be traced to but slight modifications of the elements belonging to both. We can thus pass from the simple lengthened form of the worm, gradually upwards through the myriapods, insects, arachnida, and macrura, to the concentrated form which we see in the brachiurous decapodes. This gradation of forms we shall have occasion hereafter to dwell upon, in speaking of another subject—the metamorphoses of the nervous system.

In tracing the metamorphosis the nervous system undergoes in insects in passing from the simple condition of worms and maggots upwards almost to the short-tailed crustaceous animals, beginning with the thirteen pairs of ganglia, nearly alike, with the body externally soft, and the segments equally developed, we find that there is gradually introduced an in-

equality in the segments which affects both the ganglionic and motor nerves, a concentration in the development towards the region of the thorax, from which the organs of progressive motion are to be developed. This drawing together and uniting we observe not only in the segments and in the two longitudinal systems of nerves, but also in the vascular system; for the dorsal vessel, like the integument, is at first almost smooth and without constrictions or internal folds, which, in the contracted adult state, serve as valves, especially on the ventral or concave side of the curved dorsal vessel.

The forms which the appendices of the segments assume in the various kinds of articulated animals, correspond with their living habits and necessities, whether for an aerial, a terrestrial, or an aquatic life. In the spider we find the appendices at the side of the mouth, in the form of tubular poisonous fangs, which contain a poison gland in their proximal division, and by being dense, closed at their extremity, perforated at a short distance from the extremity, they closely resemble the poisonous fangs of a serpent. We find the caudal segment of the scorpion to be in the form of a poison-fang with two small ducts, proceeding one from each side of the solid piercing point. The same terminal ring in insects is also frequently converted into a sting. The abdominal segments in most of the larger crustacea, develop false feet on their under surface for the attachment of the ova, and in most of the minuter species of that class the branchiæ are attached to these segments. This is the position of the respiratory organs in most of the entomostracous crustacea whose minute forms are spread so abundantly through all the fresh waters of continents, and through the waters of the ocean. In many of the larger decapods the caudal segments give attachment to expanded appendices, which serve for swimming, or to protect the soft parts, or to cover the hatching ova. In the arachnida the abdominal rings are often so soft that they are almost imperceptible on the smooth skin, as you perceive on the rounded abdomen (*T* 1, *b*) of these spiders. And in the myriapods almost all the appendices, from the first pair of the head (*R* 1, *a*) to the last of the tail, have assumed the same form, producing this lengthened, pedigerous, creeping, worm-like *scolopendra*. The simple form of the myriapods leads us back to the annelides, and to the simplest worms, where only the trunk of the insect is developed, as in the larva. (*R*, 2.)

Such are the principal modifications we observe in the structure and forms of the skeleton of these articulated classes of animals, with articulated members. The shelly coverings are formed between the epidermis and the true skin; they are exuviable in all the classes. Now you will observe, that the colouring matter is disposed only on the surface of these shells, that the interior is a homogeneous compact texture of a white colour in the crustaceous animals. The colouring matter, therefore, is the first-formed part beneath the epidermis. When the old shell has been removed in detached pieces from the body, and the animal has escaped with its soft, newly-formed epidermis, it secretes between the epidermis and true skin a copious deposition of the colouring matter, of a blood-red colour. The next process is the consolidation of this exterior integument; it secretes the earthy matters, the carbonate of lime, the phosphate of lime, and the other materials I have already mentioned, on the surface of the true skin; consequently the earthy materials are within the layer of the colouring matter and of the epidermis. These thin layers of calcareous matter are deposited in succession, deposition after deposition, until the animal has formed for itself an entire solid jointed sheath, covering the whole exterior of its body and appendices, and corresponding with the increased magnitude which it has assumed at each fresh casting of the shell.

This continues, then, in connexion with the true skin, and thereby in connexion with the muscles, over all parts of the body for a limited time. The growth of the body, however, soon comes to render it inconvenient to be enclosed within the old unorganised shell; the vessels become pressed upon, the circulation retarded, the general functions are impeded, and a new epidermis is thrown out upon the surface of the true skin. You perceive then, with relation to the old shell, that it is within the white solid inner surface of the shell which is to be cast. It gradually loosens the shell from its connexion with the body, and thereby renders it more brittle; and, as the joints of the shell are only connected together by their gynglimoid articulations, and by an unconsolidated part of the integument which forms the ligamentous junction of all the pieces and segments in the articulated animals, they soon become detached and decomposed, and, thus separating, they are easily broken to pieces, or fall off from the soft parts they enclosed. The large portion which covers so many important parts—the cephalo-thorax—is cast off in one mass from behind forwards. This process of casting the shell takes place periodically, but the time varies much in

the different classes of articulated animals.

We find that in insects the same character is observed of throwing off their exterior covering; that even while they have the form of a worm, while in their larva condition, they continue to throw off repeatedly the whole of their exterior covering. They do it generally at least five times during the larva state, which constitutes four important changes of the insect. It is advancing during those four changes in its internal parts more and more nearly to the perfect insect. It changes from the fifth and sometimes from the sixth condition to the chrysalis, and from the chrysalis it changes to the perfect insect, thus constituting six or seven changes.

When you examine the exuvia that have been cast off, you will perceive that the covering integument is thrown off from the jaws and from all the other appendices. I might easily trace an analogy between the exuviable parts of articulated animals, and the layers of the shells of the molluscous classes of animals, to show you, that although the tubular parts of the articulata are entirely detached and cast away from the body, there is a correspondence between them and the layers which are successively disposed on the molluscous animals, with this difference, that the molluscous animals keep constantly the old layers or shells in connexion with the new, which could not be the case in the articulated animals, where the whole body is surrounded, as well as all the appendices, with rings which would completely prevent growth if they were retained. But this can be traced as high as man himself. Nothing is more common than to find those exuviable parts cast off in fishes. You cannot confine an amphibious animal,—the common frog or salamander, for instance,—for any length of time, without obtaining its thin cast epidermis. You find that you have obtained a delicate pulpy film at the bottom of the water in which the animal has been kept, which has the exact form of the body, or of the arm, or of the leg, thrown off as an epidermic covering. We see it thrown off the surface of the body of the serpent, even from the very eye itself,—that, in fact, that animal creeps out of its covering through a rent which generally takes place in the neck. The same casting of the epidermis occurs in the saurian reptiles, and new layers are successively added to the horny plates of the chelonian reptiles. We see the same phenomenon in the moulting of birds, and in the casting of the fleece of quadrupeds. All these are but analogous exuvia from the surface of the body.

An acquaintance with the forms of the recent articulata is the best key to the deciphering of the remains of the extinct. From the thinness of the shells of articulated animals, and the mode of union of the numerous pieces by means of an uncalcified or unconsolidated portion of the general integument, they are liable after death, or during the casting of the shells, to be broken and detached from each other; that therefore, in a fossil state, you obtain the different parts of the body often much mutilated by pressure, and separated from each other. But from knowing the points which chiefly characterise these classes, and the form assumed by those parts that are most valuable as affording distinctive characters, or even by the nature of the consolidating substance and general outline of the skeleton, you have a key not only to the classes, but to the particular orders of the fossil species. Then arriving at a knowledge of the parts of the skeleton that are still more characteristic of the subordinate divisions of the classes and orders, as of the cephalo-thorax, the jaws, the feet, the antennæ, the wings, you get at a nearer approach to the genera and species; and thus we have arrived at a knowledge of many curious animals belonging to the crustacea, and other articulated classes, which no longer exist on the face of the earth.

In the crustaceous animals which are before you, as in the limulus, you will observe that the cephalo-thorax, the anterior solid portion, is so enormously developed, that it covers all the organs of progressive motion, and the respiratory laminæ placed beneath it. It, in fact, is like a large shell of the molluscous animals covering all the soft parts. Were this limulus fossilised and imbedded in some hard rock, you would have the greatest difficulty in chiselling out the rock from the lower part of the body, so as to bring these small branchiæ and feet and jaws beneath into view, for as you chiselled out the rock you would break away these small parts, and you would come to the inner surface of the alvi-thorax, or the post abdomen. The trilobites, which so much characterise the oldest transition limestones, were crustaceous animals closely allied to this entomostracous crustaceous animal, the limulus. They had a widely-extended but short cephalo-thorax, in which the eyes were placed, and numerous transverse segments behind it, as you see on the surface of these trilobites. They are named trilobites from this great alvi-thorax having an appearance of a longi-

tudinal subdivision into three lobes, and several genera have been established of these ancient crustaceous inhabitants of our seas, which so much resemble chitons.

Numerous interesting forms of crustaceous animals present themselves in the London clay, and in most marine and even fresh-water formations, but generally much broken and compressed. Arachnida, myriapoda, and insects without number, occur in bituminised vegetable resins or ambers of all geological epochs, in the more recent tertiary calcareous slates, and in gypsum and other deposits. Insects are found in the brown coal, and in the bituminous marl slate, and also entangled in the hard stalactites of chalcedony. The deciphering of these extinct forms of articulated animals, and the identifying of their species, are often important in geological inquiries, and require an acquaintance with the existing forms, and with the general plans of formation, which characterise the various groups. The accordance of these extinct forms of all epochs with the existing articulata, and the narrow limits of their variations, show not only that there is a remarkable unity of plan in this immense division of the animal kingdom, but that the same plan has been preserved from the beginning—that there is as much system and regularity and harmony in the laws which regulate the formation of these beings, and of the whole organic world, as are manifested in the rest of nature.

To-morrow I shall proceed to the skeleton of the molluscous classes.

CONTRIBUTIONS TO PATHOLOGY.

No. III.*

By JOHN ALEXANDER, *M.D., one of the Medical Officers to the General Dispensary for Children, Manchester.*

VERMINATION.

In the autumn of 1830 my attention was first particularly drawn to the subject of this paper from the following circumstance. I had been attending, for some days, a child, five years of age, labouring under convulsions of a very severe character, which had not appeared to give way in the least to the use of leeches, vesicatories, cold applications, aperients, and subsequently, antispasmodics and the warm-bath; when, one evening after a lengthened attack, threatening dissolution, a worm, of the lumbricus teres species, was expelled, the exhausted child sank into a prolonged slumber, and had afterwards no return of the convulsions. The case attracted my especial notice on two accounts. The child was a firm-fleshed little fellow, with a countenance anything but verminative, and the most careful examination of the subsequent evacuations did not lead to the detection of any more worms, although appropriate medicines were persevered in for some time.

Vermination appears to have formed a favourite subject of speculation with the profession at all periods, for not merely have we on record, respecting it, the researches of Baglivi, Linnæus, Redi, Heister, Rudolphi, Butter, Lister, Black, Home, Simmons, Bremser, Schmucker, Hooper, Rush, Rhind, and a host of modern authors, but also the earlier views of Galen, Celsus, Avicenna, Pliny, and Hippocrates.

In the succeeding cursory remarks, I purpose, chiefly, considering the disease as it is observed in early life.

Young children are subject to three kinds of worms, the ascarides or small seat-worm, the cucurbitina or flat short worm, and the lumbricus teres or round worm. The fourth variety of human worm, the tænia or tape-worm, I have in my own experience never known to be expelled by a young child, which, considering how much infested young persons are with worms, is somewhat singular; and not the less so, as I have been told by practitioners of undoubted credibility that they have had several such cases. However, the records of medicine and personal observation dispose me to think the presence of tænia in the bowels of the young a rare disease, and I feel strengthened in this opinion by a late declaration of Dr. Elliotson (made at St. Thomas's Hospital), that he does not recollect ever having witnessed a single instance of it. In Germany and Switzerland I am aware this form of the disease does frequently affect the young.

The *cause* of vermination remains in utter obscurity. At one time it was said to be a weakened condition of the alimentary canal, overlooking the fact, that this local debility is sometimes more an effect than a cause of the presence of these parasitic animals. It was supposed by some writers that worms are engendered by their ova being swallowed amongst our food; but to this specious explanation it was objected, that the alimentary canal of animals is the *only* place in which certain worms are ever found, which, of course, would not be if the ova were imported from without. Again, other pathologists (Dr. Darwin amongst the number) have advocated the doctrine of worms being caused by a general inactivity of the ab-

* Nos. I. and II. appeared in Nos. 492 and 495 of THE LANCET.

sorbent system; but in what manner they have, unfortunately for us, not proceeded to demonstrate. Lastly, these worms have been supposed to originate in peculiar intestinal secretions, and the great moisture of the young child's bowels has been adduced to support the hypothesis. But a very brief review of the theories to be found in medical writings respecting vermination will, I think, justify the assertion that nothing definite or satisfactory is known upon the subject, and lead us to agree with Dr. Baillie, "that there is nothing in the economy of animals more obscure than the origin of intestinal worms."

The most common variety of vermination is that form induced by the ascarides. These ascarides or seat-worms, as they are sometimes called, are of a yellowish colour, vary as to length, being from a quarter to three-quarters of an inch long, and have for their habitat the lower part of the colon, and the whole rectum more particularly. Another form of ascarides is also frequently observed, wherein the worm is extremely small, and hence called the thread-worm. This latter species, viewed through the microscope, is characterised by a sharp head, and when exposed to the air immediately dies. The child infested with either variety is observed to have a pruritus equally of the anus and the nostrils, and to part with motions of a slimy character, small in quantity but frequently repeated. If the number of worms be considerable, some headach, restlessness, and symptoms of dyspepsia, supervene, but not often to any great extent. In these cases tolerably large enemata, consisting of bitter aloes, suspended in any bland liquor, as gruel, linseed-tea, or olive oil, give immediate, and, if repeated, complete relief. It is advisable, at the same time to administer small doses of scammony and rhubarb to change the status or condition favourable to their regeneration. Enemata of Harrowgate water, the introduction of bougies smeared with mercurial ointment, and the smoke of tobacco and iced water, have severally had their advocates, but are now seldom used, less objectionable means answering every purpose.

Dr. Butter entertained the singular notion, that the presence of these worms was "Nature's remedy for destroying the superabounding morbid humours, and for stimulating the first passages by their crawling motions, and thereby assisting the peristaltic motion of the guts to carry off what remains of the offending load." Few persons at the present day will, I apprehend, be found to advocate Dr. Butter's ingenious view, or to think with Dr. Parr, that "worms seem to form a part of a healthy constitution, and are scarcely injurious but from accidental circumstances." Finally, with regard to the ascarides, the curious, in such matters, on referring to the first volume of *Medical Transactions*, will there find a case related by Dr. Heberden, of ascarides infesting the bowels of an adult, and resisting every mode of treatment which that talented physician and other practitioners could think of. And in a late work published by Dr. Ryan, mention is made of these worms having been found in the bladder. Such cases, however, are not met with every day!

The symptoms attendant upon the presence of the cucurbitina, or flat short worm, are much more numerous, and of a more general character. The nasal and anal pruritus are less perceived, but present; the temper is irritable, and the child subject to grinding of the teeth, starting and low moaning during its slumber. The countenance is of a pasty look; the skin yellowish; the eye dull and frequently surrounded with a darkish areola; the lips and nostrils are thick, swollen, and apparently œdematous. The breath, in a morning, is fetid; the abdomen tumid, more or less hard, and frequently painful in the umbilical region. A sudden and severe pain at the stomach is a common symptom of vermination, as also are griping pains, suddenly arising and as suddenly subsiding. The child's urine is either very plentiful and pale, or, what is much more usual, scanty, thick, and of a white milky appearance. The fecal dejections are extremely irregular, at one time constipated, at another frequent, but always accompanied with more or less slimy and offensive mucus. This form of disorder is so common in the nursery, that I need not dwell upon its description, but may now proceed to the treatment I have generally employed for its removal.

First, then, as to diet. Fresh vegetables, pastry, sweets, and salted food, should be interdicted. Stale wheaten bread, with milk, should form the evening and morning meal, and the meridian repast should consist of fresh animal food, such as mutton-chop, boiled fowl, or beefsteak, in small quantity, with the bread before mentioned. To this may be added the various animal broths, and a little of the best rice in the form of pudding. It may be, and frequently is, objected, that the hitherto-indulged child will not take to this diet. My answer is, let the child fast until it will, and the period of abstinence is seldom a very protracted one. In dispensary practice, the cure of vermi-native disorders is constantly delayed by

the parent being unable to afford the appropriate food for the child; and owing to this common occurrence we are rendered painfully sensible of the great importance attachable to a regulated diet in these cases.

Next as to medicine. It has been my custom to administer scammony, jalap, and calomel, in *small doses*, suited to the age, every alternate night at bed-time, succeeded the mornings following by a small dose of castor oil. There are two reasons upon which I think the preference for small doses of aperients might be justified. The first is, they have a better opportunity of exerting their alterative effect by being leisurely passed through the intestines; and the second is, that in the great majority of verminative cases which I have witnessed, the little sufferer is more or less troubled with partial prolapsus of the lower gut, and it is scarcely necessary to add, that powerful purgatives render this local debility a great source of distress; at the same time I fully concur with my esteemed friend and colleague Mr. Stott, in thinking that the *first* purgative should be in full dose, as a free evacuation of the large intestines gives marked relief to the accumulative distention and anal bearing down accompanying these cases. Gamboge, from being tasteless, would be a purgative peculiarly adapted for children, but it is a drug which sometimes not merely produces great nausea, but fails altogether in acting as a purgative; hence I cannot recommend its general adoption. After the first passages have been relieved for a week, the spirit of turpentine mixed with castor oil may next be given with the most salutary and marked effect, frequently removing hundreds of these enemies of childhood at every dejection. The dose I have generally administered to a child of five years of age, has been two drams, of each taken combined, on an empty stomach; and as a little tormina sometimes accompanies this remedy (first recommended by Dr. Fenwick), the mother or nurse is directed to give occasionally a little warm oatmeal gruel well nutmegged; and if the medicine induce temporary intoxication (not an unusual effect), to lay the child on its bed till it pass over. Another mode of exhibiting turpentine is, in milk sweetened; and this form will sometimes agree with the child's stomach better than the one just mentioned.

Lime-water has been greatly lauded as a beverage in these cases, and I apprehend with some justice, as its certainly beneficial effect may be accounted for, not merely on its aiding the removal of the mucus, which is said to form the chosen nidus of these worms, but as correcting acidity, and thus acting medicinally and chemically at the same time. Of course the necessity for repeating or continuing the above medicines, can only be determined by the circumstances of individual cases; but even before they are discontinued (and as a general rule I have persevered in their exhibition for a fortnight), there is no objection to the use of some strengthening remedies with which the cure may be completed. For this latter purpose, the infusions of camomile, gentian, or calumba, with the powders of iron, bark, or rhubarb, will, any of them, answer very well.

The use of cowhage (or the dolichos pruriens of Linnæus) has been strongly urged on the profession by several practitioners, more particularly by Drs. Chamberlin, Macbride, and Thomas, the latter of whom affirms, "that in several hundred cases in which he exhibited it in the West Indies, along with the submuriate of mercury and jalap, he never knew it once to fail." Had the latter-mentioned remedies not the more important agency in the cure? The cowhage I have used, but not extensively enough to authorise my venturing a decided opinion respecting it; and perhaps it is but justice to Drs. Chamberlin, Macbride, and Thomas, to add, that in "the natural history of Guiana," an essay replete with information, Dr. Bancroft has recorded sentiments equally favourable to this now-little-used medicine.

Of fern root (the basis of Madame Nouffler's celebrated remedy), of valerian, asafœtida, in powder—iron filings, ground glass, &c., I know little further than that they have been extensively used as vermifuges. The latter mentioned (if administered) must be given in very large doses, as their operation is purely mechanical.

A regulated diet, and daily exercise in the open air, are assuredly the best means of preventing a recurrence of the complaint under consideration. And one dietetic article I may here with propriety allude to, and that is common salt, although I cannot agree with Dr. Rush, in thinking it valuable as a means of *removing* worms, I certainly do esteem it highly as a constituent in a child's food, well calculated to prevent their *regeneration* in the intestines. The disease called the *rot* in sheep is accompanied, or caused, by great numbers of the fluke-worm being imbedded in, and destroying the liver, and every practical farmer well knows that salt given freely, is almost invariably a sure prevention of this plague of sheep-folds.

The destruction of the third variety of worm, to which children are liable—viz. the lumbricus teres, must be conducted on principles similar to those I have just described. Suffice it therefore to remark, that the ileum is the favourite habitat of the worm, that perseverance is indispensable for its removal, and that, although the least common, it is the most dangerous variety of vermination to which children are exposed, as it oftener leads to convulsions and death than any other. And here I may lay down a practical fact of great importance, that the non-detection in a child's motions of any worm, is not, by any means, conclusive evidence of the child being free from them. Therefore, if a young person labour under verminative symptoms, we should continue to exhibit appropriate medicines for some time, although apparently without effect, as it has been well observed by Dr. Armstrong, that worms may be so changed previous to expulsion, as not to be recognisable.

Vermination gives rise to many sympathetic affections in the brain, in the heart, in the lungs, in the stomach, and in the bladder. An instance of the first of these, viz. a sympathetic affection of the brain, commences this paper, and since the time of its occurrence, I have repeatedly met with similar ones, though none perhaps better marked. It becomes then a matter of practical import, to ascertain the features by which the young practitioner may be led to suspect at least the existence of vermination, when operating, as a cause of disorder, and with that end in view, the following observations, brief though they be, may not altogether prove useless.

If a child, who has exhibited a fretful temper, has been irregular in its bowels, has a tumid abdomen, and has been subject to slimy evacuations, should be attacked with cerebral symptoms, they should first be met, almost exclusively, by active purgatives, for, with the removal of the cause, will the apparently cerebral disorder subside. Again, should a child so circumstanced exhibit still stronger symptoms of affection of the brain, as dilated pupil and epileptic paroxysms, *without a corresponding affection of the pulse and skin*, vermination is probably the source of disturbance.

Should a young person be troubled with pain, sometimes referred to the side, sometimes to the epigastrium, and more frequently to the umbilical region, and be seeking relief for a tickling cough, unattended with expectoration though considerable emaciation, anthelmintics will frequently prove the best remedies that can be exhibited, as this is often but another form of the disorder under consideration.

Irregularities of the vascular system are frequently observed to arise from the presence of worms. Not twelve months ago I was consulted as to the curability of a young lady said to be labouring under an affection of the heart. I found, in the case alluded to, an intermitting pulse, short-breathedness, tickling cough, and a countenance certainly not unlike the physiognomical expression of a person labouring under an affection of that vital organ. But on proceeding to an examination of the alimentary functions, I was led to suspect that they were quite as much concerned as the heart, which might only be suffering sympathetically. The treatment for vermination was adopted, and I had the satisfaction not merely to see great numbers of worms which had been expelled, but to witness the young person's rapid restoration to health.

I have known some well-marked instances of gastric uneasiness being solely attributable to the presence of worms, and have been led to think the lumbricus teres the usual cause of uneasiness; as in two children I have witnessed this worm make its exit by the mouth much to the surprise of the by-standers. In these cases the symptoms, in addition to the gastric pain, are those of worms generally, and great nausea more particularly.

The sympathy between the bladder and the alimentary canal is so frequently observed as scarcely to call for remark. When the latter is infested with worms to any great extent, the former is invariably disturbed; I shall therefore only on this point observe, that the frequent disposition to urinate, and the thick milky state of the water might probably mislead, or be mistreated by, a practitioner who failed to bear in mind the intimate relations existing between the bladder and the intestines.

Having in the above observations attempted to describe three varieties of vermination, our *diagnosis* ought not to be confined to the distinctions between that complaint and others, but should extend to the inquiry,—How may we know the *particular form* before us? In well-marked cases there is little difficulty, as, for instance, if a child, having great anal and nasal pruritus, be free from inordinate appetite, tumid abdomen, or disposition to cachexy, we may feel assured the irritation is purely ascarideal. Again, if a child be cachexial to a great extent, have little of the pruritus just mentioned,—have an inordinate liking for improper food and cold water, and be troubled with the before-described symptoms, in such a case

great part of the intestinal tube is doubtless affected by these parasitic animals. Lastly, if a convulsive paroxysm, cerebral disorder, or particular abdominal pain, arise in a healthy-looking child, and be unaccountable except on verminative explanation, the presence of the teretral variety is indicated. Hence our diagnosis, as to *form* of disorder in the majority of cases, approaches to certainty. But it does occasionally happen, that the bowels of a child are infested by two or even three varieties of worms at the same time. In such cases the symptoms are of a mixed character.

In conclusion, very little attention has been paid to the post-mortem appearances in this disease; a lamentable fact, too, easily ascertained by reference to the pages of Baillie in past, and Martinet in more recent times. One reason, doubtless, is the comparative infrequency of children dying solely from vermination; but still cases do occasionally present themselves, and should the author of the present contribution ever venture to resume the subject, it will be to direct attention to this much-neglected but interesting field of pathological inquiry.

MEDICAL EDUCATION IN FRANCE AND ENGLAND.

To the Editor of THE LANCET.

SIR,—In your able article of this week, you have omitted to mention some of the most important circumstances connected with medical education in France. Of these, the principal is, that, to every aspirant for the doctorate in the university of France, the degree of "Bachelor of Letters," as an evidence of a sufficient general education, is an indispensable testimonial. This degree is equivalent to that of "Bachelor of Arts" in our universities, but in the Faculties of Letters in France the examination for it comprehends more subjects, and is far more searching, than in Oxford, Cambridge, or Dublin. The French Faculties, however, receive *ad eundum*, graduates in all foreign universities, and doctors in medicine of foreign universities are admitted to the same degree in France, on going through the formality of supporting a thesis. When the student attends at the office of the Faculty of Medicine in Paris, or in the other academies, to take out his first inscription, he must produce his diploma of the "Baccalauréat ès-lettrés" to the chief secretary, if he wish to inscribe himself as a student of the first class. In such case he pays fifty francs for each inscription, and for that sum the lectures of the faculty, all the hospitals, and the dissecting-rooms, are open to him for three months. These inscriptions are renewed within the first fifteen days of every three months, if convenient to the student, but if not, he can let one or more terms pass and resume again. The students of the second class, or *officiers de santé*, pay but thirty francs for their inscriptions, and are not required to produce any evidence of having received a learned education, it being only necessary for them to make it appear that they can read and write.

These are facts but little known amongst our English students, and which prove very embarrassing to some of them who have the ambition to graduate in Paris. The preliminary step of the *Baccalauréat ès-lettrés* they find too difficult for them, being in general, though tolerable Latin and Greek scholars, deficient in algebra, mathematics, philosophy, geography, history, logic, and rhetoric, acquirements on which the French set a high value, and in which the candidates are examined at the Faculty of Letters *publicly*, and in a manner that precludes all favouritism, and secures, at the same time, fair play to the examinant. It is owing to this "rascally" *Baccalauréat ès-lettrés*, as the English students often express it, that so few of our countrymen graduate in Paris. Not having this degree, they inscribe themselves there on the footing of the *Officiers de Santé*, obtain certificates from the professors, whose presenting such documents is an act of courtesy, and then return to this country to graduate in the Scotch universities. The evidence of having received a learned general education is, then, a *sine qua non*, in the system of medical education in France, and had our "legally-constituted medical bodies" here exacted similar proofs, the profession would not be so encumbered as it is with drones, who live on the honey collected by the bees. "The heads" of the profession with us have hitherto profited by the ignorance of the mass, so that it has been a matter of policy with them to retard the progress and diffusion of medical knowledge. Things, however, are changing with a rapidity of which no student of the present day can form an idea; but I and those who recollect how things were before THE LANCET began to enlighten the medical world, know that a miraculous change has already taken place, and it must be admitted that that change is

owing entirely to the labours of one man, Thomas Wakley.

I think your suggestion of establishing three councils or courts of examiners (putting first all existing colleges into "schedule A"), one in London, one in Dublin, and one in Edinburgh, the best plan that can be adopted. These courts should be equivalent in privileges and power, and their duty should be confined to examining all those who come before them as candidates for the degree of "Doctor in Surgery" or "Medicine." The matters or subjects to be examined upon, should be specifically defined, and learning, whether general or professional, should be allowed to pass as current as the sterling coin of the country, without putting a single question as to how, or where, or when it was got. Learning is a thing of which no man can be robbed, and for possessing which no man is liable to the suspicion of being a thief. Why, then, should a man be asked any questions as to how or where he got it?

The possession of money sometimes makes a man liable to suspicion, yet we have never heard that they ask any questions at the colleges about the means by which the candidates for diplomas came by the money to be paid for such documents. No; but we every day hear of their pertinacious inquiries about the place and time in which the learning was acquired, and often of whom? An old baronet, now dead, once, when half-seas over, at the College of Surgeons, asked a young gentleman "whose pupil he had been?" "Mr. ——'s," answered the student. "Oh! very well," said the examiner, "I taught him; so there is no occasion to ask you any questions." The young gentleman was passed, regardless of what the consequences might be to the public; but, fortunately for the community, he was a superior and well-educated candidate, and it is due to him to say that he was sadly disappointed by the conduct of the good-natured baronet. This plan that I propose would not interfere with private teachers, to whom the students in the universities are now often under the necessity of resorting for information which they cannot obtain from the professors,—generally the children of patronage, but whom, nevertheless, the students are obliged to pay.

This observation is not meant to apply to the professors in the Faculty of Paris, as those gentlemen are all men of European reputation; and so long as the concours exist, their successors must necessarily be also men of the first class. I know that there are men in France who rail against the concours, and call them *une mystification*, and so they ought, as the concours stand like a wall of brass between such men and place. I do not mean to say that there is not room for the exercise of favouritism in the concours, but I fearlessly assert that there is as little latitude therein for the successful exercise of partiality as in any institutions of human invention. I am, Sir,

Your very obedient servant,

G. —.

London, Dec. 2, 1833.

CONTROVERSY

BETWEEN

DR. O'BEIRNE AND MR. SALMON,

ON THE

ANATOMY AND FUNCTIONS OF THE RECTUM.

To the Editor of THE LANCET.

SIR,—The interest I consider you have always shown for the promotion of medical science, and the desire you have so frequently expressed of devoting your pages to the promulgation of any matter tending to the advancement of our profession, prompt me to request your insertion of the enclosed letter and documents in your widely-circulated Journal; I further ask you to do so, because, in one of your recent numbers, "the fallacy" of my opinions in reference to the controversy with Dr. O'Beirne was adverted to by one of your correspondents.

Although many of your readers may be ignorant of the points in dispute between Dr. O'Beirne and myself, they need not a preliminary explanation, as in my reply to that gentleman I have taken no new ground, but confined myself simply to refuting the positions he advanced in his letter to me, and which (where of moment) my present communication fully elucidates. I am, Sir, respectfully,

Your obedient servant,

FREDERICK SALMON.

12, Old Broad-street,
Dec. 2, 1833.

[It is contrary to our general practice to devote any portion of our pages to controversies which are commenced in contemporary publications, but having, in page 257, inserted a note from our respected correspondent Mr. Oldknow, containing an inquiry relating to a dispute existing between Dr. O'Beirne and Mr.

Salmon, we readily comply with the request of the last-mentioned gentleman to publish the following documents.—Ed. L.]

*To the Editor of the Medical and Surgical Journal.**

* * * * * * *

Dr. O'Beirne has accused me of two important misstatements:—"First," he says, "I do not deny that the rectum is intended to *contain* fecal matter, because every one knows that the feces must pass through it." Now without being disposed to cavil about the construction of words, a reference to "Walker" will show that "to contain" means "to hold," and, I presume Dr. O'Beirne will not deny that the bowel may with perfect correctness be said to *hold* "the little fecal matter which (he states) may be found in its pouch, but in no other part;"—an admission rather irreconcilable with the following observations extracted from his book:—"I have been led to examine the rectum of healthy persons, at different times of the day," and, "in every instance where the tube presented the least appearance of feces, this was confined to that portion of its upper extremity, which had entered the sigmoid flexure." In another place, he says, "surgeons find it necessary to pass a finger into the rectum for surgical purposes, &c. &c. yet it is a fact, that it has extremely rarely happened that the finger has encountered feces." Again, "It is also a fact, familiar to apothecaries and nurses, that the pipe of an injection machine, however long it may be, is rarely if ever soiled with fecal matter;" and, when alluding to examining the bowel, he remarks, "the tube could be moved about freely in a space which, on introducing the finger, was ascertained to be what anatomists call the pouch of the rectum, in a perfectly open and empty state." Dr. O'Beirne goes on to say, "So far from denying that the rectum acts as an antagonist to the sphincter, the view he takes of it in his reply *actually makes it the only antagonist of the sphincter muscles.*" And how does he prove this? Not by considering the bowel in the light it has hitherto been estimated, a receptacle for the feces, in common with the rest of the alimentary canal, expelling them by its contractility, and thus overcoming the power of the external sphincter; but by showing, "that while the intestine is contracted and empty, its upper annulus or extremity is engaged, and not, as has been supposed, the sphincter ani muscle in opposing the action of the diaphragm," &c. Now it is evident, that so far from the rectum, when *empty*, acting as an antagonist to the sphincter, inasmuch as it is in its natural state of passive contraction, it can only be considered to act in unison with that muscle. So much for my two important misstatements.

Dr. O'Beirne appears to estimate very lightly my observations on the process of defecation, which, he says, contain "little of novelty." I am inclined to go a great deal further, and say they contain nothing of novelty. This, however, is of no moment. The question is, do they satisfactorily account for that process? And if so, do they not expose the erroneousness of his theory? Here I rest content with the decision of all professional men of candour and judgment.

He proceeds, "Assuredly I could not possibly have read his work," when "I put the four questions respecting the rectum," for, "if I had I should have found, that he discussed the three first points at great length, and explained them on the only principles upon which it is possible to explain them correctly." Of the peculiar form of the bowel (the first of those four questions), Dr. O'Beirne says nothing. As to its extreme muscular power (the second question), he writes in his book, and the words are printed in italics, "It is, therefore, both an anatomical and a physiological fact, that this intestine exceeds every other part of the intestinal canal in the number and strength of its muscular coats, and, consequently, in muscular power." Now if any of your readers will take the trouble to refer to the chapter in my work on stricture of the rectum, which treats of the anatomy and physiology of the bowel, they will perceive that the remarks of Dr. O'Beirne, which may be considered as illustrative of this fact, contain nothing new. Neither can I find that he assigns any reason *why* the rectum should be larger at its anal extremity (which was the third question). The greater abundance of the absorbents near to this part he "formally denies," and accounts for the prevalence of the mucous glands (the two points embraced in my fourth question), by stating, that "common sense points out, that an extra sprinkling of mucous glands would be particularly required at a point where a considerable mass of dry and solid excrement was about to pass through so small an outlet as the anus." With regard to the absorbents, I believe them, from what I have seen, to be more abundant at the inferior part of the rectum, and I hope, ere long, to demonstrate that this is the case. If, however, the bowel does not

* The controversy was commenced in this periodical.—Ed. L.

retain the feces, but only *contains* them for the very limited period they are passing through its channel, I confess I do not see how the mass, while so evacuated, is to become "*dry*," or the necessity for that increase of the mucous glands near the orifice, which Dr. O'Beirne admits to exist. I think it would have been more rational to have placed the superabundance at the commencement of the gut, or where he considers the fecal matter accumulates.

Dr. O'Beirne next enters upon the question of whether or not the rectum is a depôt for the gradual accumulation of feces, and states, that I sustain the former opinion, first, "by giving as his an entire passage, which is not to be found in his book;" a grave charge, and one which, if true, would justly entitle me to unlimited censure. But what is the fact? That when replying to *your remarks*, I quoted some of those *verbatim*, which he (as it should be presumed) unknowingly, and consequently unintentionally, has charged me with giving "as his;" a mistake, nevertheless, somewhat remarkable, considering that its author had taken above three months to frame the letter addressed to me. Of the opinion conveyed in the following passage in my first letter, "hence, alluding to collections in the bowel, the symptom, *irritable bladder, which invariably accompanies stricture in either of the two upper curves of the rectum*," he summarily says, "I deny this to be the fact;" and "why? Because he has frequently examined the rectum of persons labouring under irritable bladder, and has never found it to contain feces;" and, "because it is well known that such an affection of the urinary bladder exists without constipation;" and, it does not appear that the comparatively rare cases in which constipation is caused by indurated feces accumulated in the rectum, have been attended with irritability of the bladder!" This is, indeed, sound reasoning, and a satisfactory refutation of my position.

Notwithstanding the "thirty years experience" which your correspondent states he has passed "in the study and practice of his profession," I must again say that "I think it *questionable*" if the sphincter is ever destroyed by *syphilis*. Whether such an effect took place in former times, when the treatment of the disease was ill understood, is a proposition I am not prepared to discuss. I am, however, able, from experience, to assert, that so far from a person affected with *carcinoma recti*, "rarely, if ever," passing "his stools involuntarily," he will be necessitated to void them every ten or twenty minutes; in fact, in the latter stages of that appalling malady, he loses the power of retaining them, altogether. I have an example of this at present under my care, in which the afflicted patient, in answer to my inquiry of—"Do you think your bowels less irritable?" replied, "Perhaps they are so; I only had forty-one evacuations between eight o'clock last evening and eleven this morning."

"Why," asks Dr. O'Beirne, "have you not adverted to the proofs which I have adduced in prolapsus ani," and "the operation for fistula?" &c. Simply I answer, as before, because I was not analysing his book, but remarking upon your review of it; yet, in reference to the first of those two points, I may observe that there is no such disease as prolapsus ani. The anus, as I state in my Practical Observations on Prolapsus of the Rectum, is but the aperture through the sphincter, which cannot be prolapsed; and as to the division of this sphincter in the cure of fistula, reflection shows that the muscle being circular, its separation at any particular part does not destroy, though it weakens, its retentive power.

In reference to the observations Dr. O'Beirne makes on the following passage in my first letter, "neither in my limited judgment is his examination of the rectum at all conclusive of the correctness of his opinion, considering it as I do to be anything but a scientific exploration of the part,"—I cannot do better than to request your readers to refer to my former remarks, which, I should suppose, must, to any person conversant with the form, natural caliber, and relative position of the bowel, be conclusive; to argue further upon this point, would be a useless waste of time. Respecting the causes of contraction of the sigmoid flexure, I repeat that I have long since stated they are similar to those Dr. O'Beirne is reported in your review to consider them; to wit—"morbid irritation," "constipation," "frequent accumulations," "drastic medicines," "peculiar form," and, lastly, "a narrowness of the sigmoid flexure," which I believe to be "*sometimes* congenital." He however writes, "that not having seen any report of your lectures, I can only reply to this point, by turning to the *second* edition of your book, in which I cannot find that you have qualified your opinion by the word *sometimes*, from which circumstance it would really appear that the interpolation is of very recent date, and that you are likely to come round to my views of the matter." Upon the two first points the Doctor may be instructed by a reference to the pages of the number of that most useful periodical THE LANCET, as published on the 26th of May, 1832; and upon the last point I would suggest,

that it is not usual to quote the *second* edition of a work of which a fourth has been published, since the month of April last; furthermore, the sense of the paragraph which Dr. O'Beirne says I have interpolated, is as clear, even in the first edition, as the sun at noon day, when, in allusion to the appearance of stricture in children, I write, "*So early* have I witnessed this, that I should think the disease congenital." If Dr. O'Beirne will peruse the fourth edition of my book, I feel satisfied he will perceive the inapplicability, not to say the offensiveness, of the remarks contained in this part of his letter.

I now come to the point which is of more consequence than all the others put together—to wit, whether or not stricture of the rectum exists within reach of the finger. Here Dr. O'Beirne has gone much further even than was necessary, and replies, with equal candour and incaution, that "if either of these gentlemen (whom he names) informs me that you possess preparations, showing distinct thickened and shelf-like projections, *from any part of the interior of the rectum, lower down than its upper extremity*, I hereby bind myself at once publicly to recant my error. But if, on the contrary, either of those gentlemen should inform me that your preparations exhibit nothing more than a greater or less degree of uniform thickening of the parietes of the intestine, and extending to a greater or less degree downwards, without any distinct, thickened, and shelf-like projections internally, I shall expect you to adopt the same course." Now your readers will at once perceive, that the challenge conveyed in the first division of this paragraph absolutely goes to the extent of denying that stricture of the rectum exists below its union with the colon, a latitude of opinion which even I had not given Dr. O'Beirne credit for, since I merely contended for the existence of permanent stricture in the lower part of the rectum." It likewise appears, from the meaning conveyed by the second sentence of the paragraph which alludes to the morbid anatomy and situation of stricture, that Dr. O'Beirne is but ill acquainted with those matters, else he would know that it is exceedingly unusual to find any other result in the two upper thirds of the rectum, how much soever it may be contracted, than a uniform thickening of its parietes, from deposition in the cellular tissue between the mucous and muscular coats, by reason of the longitudinal fibres preponderating at those points, while circular stricture will, from the redundancy of the circular fibres, be most commonly within reach of the finger.

Immediately after reading Dr. O'Beirne's letter, I wrote to Mr. Bransby Cooper, one of the friends he named (although I should have considered that if Dr. O'Beirne or any respectable professional man declared publicly that he had certain morbid parts in his possession, it would have been conclusive), and requested him to inspect, in conjunction with Dr. James Blundell, several preparations illustrative of stricture of the rectum. Subjoined is their testimony. Finding they differed so materially, I obtained Mr. Stanley's opinion, which also is annexed. All of these documents I shall feel obliged by your giving publicity to at the foot of this letter.

I before stated, that when the rectum is empty, its muscular coat is naturally in a state of passive contraction, which obviously retards rather than facilitates the passage of the stools; and, "that any one who is not practically accustomed to examine the rectum may mistake the natural contraction of the gut for stricture; and for this reason the mucous tunic is not endued with any material contractility, and is, therefore, during the period of the passive contraction of the muscular coat, thrown into numerous folds, which vary in number and size; *sometimes* these are of a circular shape, at others they form prominent and irregular ridges in the bowel." I add, in postscript, "Morgagni has denominated these the columns of the rectum." It is apparent upon the face of these remarks, that I never meant that that distinguished anatomist applied the term "columns" to the circular folds, because they were of such form, but that he gave that appellation to the mucous folds generally, the circularly contracted state of which I instanced as an exception to their usual condition. Dr. O'Beirne, however, would fain make your readers believe I was ignorant of the usual form of the folds of the rectum, which, he says, "do not, it is obvious, oppose any resistance to the passage of the finger, or the tube." I confess myself of a different opinion, believing as I do that the introduction of an instrument much less in caliber than the size of the channel through the bowel when extended, is likely, particularly in the hands of an inexpert operator, to hitch it in the sacs formed by the corrugations of those folds, especially if, to use Dr. O'Beirne's words, "the natural state of the rectum be one of *forcible* contraction," which, I contend, it is not; but that when empty it is in a state of passive contraction, a "fact," he complains, "I avail myself of, as if it were well and generally known," which it surely is, or, if not, certainly ought to be.

Dr. O'Beirne admits that a "bougie of

the largest size will often pass up and dilate the healthy rectum without difficulty or pain," yet he considers the bowel *when* empty to be in a state of *forcible contraction*, which to my mind is not very intelligible; for if the rectum be thus closed, considerable force must be used to open its channel, more particularly if the dilating instrument be of a small size, by reason of which it offers less opposition to the bowel, stimulated from its introduction to eject its contents, but this my former letter fully illustrates.

I must decline commenting upon the remaining passages in Dr. O'Beirne's letter, which are perused by me more in sorrow than in anger, or accepting his challenge of entering into a controversy respecting his opinions, which would in all probability lead to a much greater sacrifice of time than I am able conveniently to command. I beg, however, to assure him that I am actuated by no desire of upholding "my own views," or of assailing the "doctrines of others," neither is it "my wish to prejudice the minds of many against views which are perhaps eventually found to be much sounder or more useful" than my own, but that, as far as I am concerned, your readers will consider this is an "hypothetical case." My object has been, as I trust it will ever continue to be, to further the interests of science, and by such means to alleviate the sufferings of mankind. If, by exposing the errors into which your respectable correspondent has fallen, or my own ignorance of a class of diseases which it is well known I have extensively, and, I trust I may without presumption add, serviceably, studied, I have contributed to such desirable ends, it is enough; the judgment upon those points rests as it is right it should, with the unprejudiced, the competent, members of our profession.

I am, Sir, respectfully,
Your obedient servant,
FREDERICK SALMON.

12, Old Broad Street,
Nov. 29, 1833.

Opinion of Dr. Blundell.

"HAVING, at the request of Mr. Salmon, examined certain preparations in his collection marked A, B, and C, respectively, and intended to demonstrate the existence of stricture of the rectum, I beg to make the following statement of the appearances which I now observe in the preparations as they stand before me.

A

"Exhibits a great part of the rectum, with portions of contiguous organs, the internal orifice of the urethra *in situ* the lower and middle part of the vagina. A large portion of the peritoneum, covering, as usual, the upper and middle part of the rectum in front. The sphincter ani, the anus, and contiguous perineal integument with several hairs growing upon it, at the very verge of the anus.

"In this preparation there is a distinct annular contraction, as if produced by a packthread drawn with moderate tightness round the bowel, closing in so much as to preclude the insertion of the little-finger. This contraction is situated about two inches and a half above the outer verge of the anus, rather less than more, and is decidedly within reach of the fore-finger, independently of the help which might be derived from urging.

"Immediately above the stricture an incision has been made in the side of the rectum, the thickness of which is visible, and exceeds one-eighth of an inch, and the inner membrane, also exhibited, seems evidently in one part of it to be destroyed by ulceration, and in another, where it remains unbroken, its structure is changed, being roughened and thickened.

B.

"In preparation *B*, apparently, the entire rectum, and a part of the sigmoid flexure of the colon, together with the womb and vagina, throughout the greater part of its length (both *in situ* with respect to the rectum) are carefully exhibited. In this preparation either the entire rectum, or certainly all except the upper portion, where it is continued into the sigmoid flexure of the colon, is exceedingly thickened, and so contracted throughout the whole of the thickened part that the little-finger, especially in the inferior portion of the rectum, could not be passed along it without some violence. Where there has been most deposit, the coats of the bowel exceed in thickness three-fourths of an inch. Various sinuses run in various directions, one apparently opening into the vagina.

"The uterus and vagina lying *in situ* upon the rectum, seem to mark distinctly that part of the rectum which is most contracted and thickened, and which, as described, is the inferior portion clearly within reach of the fore-finger, which, indeed, on making an examination, must evidently bear upon it immediately on passing the anus.

"A cursory observation of some of the other preparations appeared to confirm the observations made on the two preceding, but they were not examined with the same care.

"JAMES BLUNDELL, M.D."

Opinion of Mr. Bransby Cooper.

"New-street, Dec. 1, 1833.

"Having been requested by Dr. OBeirne to give my opinion upon a point at issue between him and Mr. Salmon, respecting stricture of the rectum, I submit to the task, as the subject is involved in considerable physiological and pathological importance.

"If I understand the point in question correctly, it is, whether or not organic stricture ever occurs below the upper portion of the rectum, Dr. OBeirne being of opinion that it does not, while Mr. Salmon considers that it does.

"It is necessary therefore to notice what Dr. O'Beirne means by organic stricture of the rectum, and from reading his work, I understand the following to be the conditions by which he characterises this disease.

"A deposition of adventitious matter, originating in the submucous tissue of the rectum, and subsequently becoming organised, implicates the muscular and mucous coats, producing shelf-like projections into the cavity of the bowel so as to narrow its calibre, and occupy either the whole, or only a part of its internal circumference.

"Mr. Mayo, in his recently published work on injuries and diseases of the rectum, p. 165, gives very nearly in the same words his definition of permanent stricture of the rectum; and thus far Mr. Mayo and Dr. O'Beirne agree in the formation of organic stricture.

"Dr. Blundell at the request of Mr. Salmon, and myself on the part of Dr. O'Beirne, examined Mr. Salmon's morbid collection, to learn whether or not he possessed any preparations demonstrative of such morbid changes below the upper portion of the rectum.

"The result of this investigation leads me to say, that no preparation which I saw of Mr. Salmon's presented the appearances of organic stricture as above quoted.

"One of the preparations which I examined, was a specimen of thickening of the parietes of the rectum, concomitant with ulceration, and involved in the disease of the neighbouring organs, particularly the vagina, into which a sinus opened.

"Such a disease Dr. O'Beirne has fully described at p. 35 of his work, and points it out in contradistinction to the shelf-like projections produced by the diseased mucous membrane of the organic stricture.

"The latter kind only involving a portion of the bowel, leaving the remaining part of the calibre free from disease, and pourtraying therefore a very different state from that disorganization which attends ulceration, in which the surrounding tissues and organs are liable to be affected.

"The specimen of thread-like constriction which I saw producing the distinct circular contraction, I have no hesitation in pronouncing spasmodic, and, therefore, not referable to organic stricture.

"These observations I think I may say bear a great resemblance to those made by Dr. Blundell upon his inspection of the same preparations.

"BRANSBY B. COOPER."

Opinion of Mr. Stanley.

"Lincoln's-inn-fields, Dec. 4, 1833.

"Dear Sir,—Agreeably to your request, I have examined the several preparations you possess of disease in the rectum, and have selected the following for particular description.

"1. *Specimen.—From a female:—*

"About two inches and a half above the anus there is a contraction of the rectum in its whole circumference, and to the extent that it is here reduced to about one-third of its natural size. The contraction occupies only a line in the circumference of the intestine, consequently its outer surface presents an indentation similar to the appearance which would result from tightly drawing a piece of string around the intestine. Immediately above the contracted part the bowel is dilated much above its natural size; the coats of the intestine are here generally thickened, but for some way above the contraction there is a superficial ulceration of the mucous membrane. The thickening of the coats of the intestine is such as might be considered to be the result of simple inflammation, presenting no character of malignant disease.

"2. *Specimen.—From a male:—*

"This specimen presents all the characters which have been expressed in the description of the preceding specimen, from which it differs only in the circumstance of the contraction of the rectum being to a greater extent; it will only admit the passage of a middle-sized urethra bougie.

"3. *Specimen from a male:—*

"The lower part of the rectum to the extent of three inches and a half from the anus, is uniformly and considerably contracted. The mucous membrane is removed by ulceration from the whole of the contracted part of the intestine. Several fistulous passages extend from the ulcerated part of the bowel to the margin of the anus. I remain, dear Sir,

"Yours very truly,

"EDWARD STANLEY."

ALDERSGATE-STREET DISPENSARY.

ADDRESS FROM COLCHESTER.

To the Editor of THE LANCET.

SIR,—As a *brief* notice only of the resolution unanimously passed at the meeting of the Colchester Medical Society, held October 29, 1833, appears in your last, the particulars of which were by some mistake not immediately inserted in your valuable journal, while an account of several meetings *held since* have been given *at length*, you will oblige the Society and myself by giving place to the following in your next number; and I have the honour to remain,

Yours very obediently,
ALDERMAN PARTRIDGE,
Treasurer and Secretary.

Colchester, 25th November, 1833.

At a meeting of the Colchester Medical Society, October 29, 1833, the following resolution was proposed and unanimously agreed to:—

"That this meeting is desirous of expressing its cordial approbation of the course pursued by the late medical officers of the *Aldersgate-Street Dispensary*, in resigning their situations in that institution, when they could not retain them without compromising their own characters, nor without injuring the best interests of a charity, to which they have so long and so faithfully afforded their valuable and gratuitous services.

"In thus manfully maintaining a principle that involves in it the honour and respectability of the profession, they have offered an example well worthy the imitation of their medical brethren, as well as fully deserving the serious consideration of all who take an interest in the permanent welfare and success of every similar institution.

"If places, which should be occupied only by men of science and respectability, are, in effect, to be avowedly sold by public auction whenever the office of physician or surgeon becomes vacant, there is an end to all honourable competition,—unblushing ignorance, backed by money, may usurp the place of superior talent and integrity, while the situation thus degradingly obtained, will soon cease to be worth the purchase. Moreover, it may be observed, that every institution *thus* propped up for a time, must soon lose the support of its *old* and *regular* subscribers, who will retire in disgust, and leave it eventually to become the merited sacrifice of a mercenary and short-sighted policy.

"In conclusion, the meeting *laments exceedingly*, that any individuals should be found so forgetful of what is due to themselves, and to the honourable profession to which they belong, as, under such circumstances, to accept of offices that were resigned by their predecessors for reasons so just and praise worthy, and with the universal approbation of their medical brethren, both in the metropolis and throughout the country."

(Signed)

T. Tomkin, *Surgeon*, Witham, Essex (*President*).
R. D. Mackintosh, M.D., *Physician to the Colchester and Essex Hospital.*
Edward Liveing, *Surg.*, Nayland, Suffolk.
William Wayles, *Surg. to the Essex and Col. Hosp.*
Henry Horatio Bidwell, *Surg.*, Dedham, Essex.
John Sergeant Norman, *Surg.*, Merse, Essex.
John Lawton, *Surg.*, Boxford, Suffolk.
Alderman Partridge, *Surg. to the Essex and Col. Hosp.*
Roger Nunn, M.D., *Surg. to the Essex and Col. Hosp.*
Robert Bewick, *Surg.*, East Bergholt, Suffolk.
James Henry Smith, *Surg.*, Manningtree, Essex.
D. L. Manthorpe, *Surg.*, Thorp, Essex.
J. G. Daniell, *Surg.*, Nayland, Suffolk.
A. Maclean, M.D., *Physician to the Essex and Col. Hosp.*
Philip Gretton, *Surg.*, Colchester.
B. F. Symmonds, *Surg.*, Bines, Suffolk.

MEDICAL REFORM.

MEETING AT SHEFFIELD.

AT a General Meeting of the Members of the Medical Profession resident in Sheffield and its vicinity, held at the *Savings Bank*, Sheffield, on Monday, December 2, 1833,

CORDEN THOMPSON, M.D. in the chair, the following resolutions were proposed seconded, and passed UNANIMOUSLY:—

1. Proposed by Mr. BOULTBEE, and seconded by G. C. HOLLAND, M.D.

"Considering the improved and daily improving state of medical science, the great enlargement of its boundaries, the brilliant progress of our continental brethren, from the superiority of their medical regulations and institutions, together with the liberal views and sentiments now so generally prevalent throughout the profession, it is the opinion of this meeting,

that the existing medical incorporations of the United Kingdom ARE ALTOGETHER INADEQUATE TO THE EXTENDED AND GROWING WANTS OF THE PROFESSION AND THE PUBLIC, such incorporations being either radically defective in constitution, and arbitrary and unjust in operation, or antiquated, and insufficient for the advancement of the healing art, and the effectual prevention of empiricism."

2. Proposed by Mr. E. GILLOTT, and seconded by C. F. FAVELL, M.D.

"That it is intolerably grievous and flagrantly unjust for the regular practitioner to be compelled by medical corporations to incur great expense and consume much time and labour in qualifying himself for the duties of his vocation, whilst the same corporations have NEITHER THE POWER NOR THE PRETENSIONS to protect him against the encroachments of the most NOTORIOUS EMPIRICS, and the various unlicensed pretenders to medicine with which every town in the kingdom swarms."

3. Proposed by H. P. HARWOOD, M.D., and seconded by Mr. GREEN.

"That the absurdity and evils of the present system of medical regulations, are strikingly illustrated by the fact,—that a practitioner educated and duly licensed by one corporate body, can be precluded by another from exercising his profession in certain towns and districts over which such body holds jurisdiction; and that it is preposterous and unjust in the extreme for this jurisdiction to be exercised by men professedly deriving their education from UNIVERSITIES where proper scientific and practical medical instruction and examinations are absolutely unknown; as is the case, for example, with the Fellows of the LONDON COLLEGE OF PHYSICIANS,—and that such a system tends simply to monopoly of practice and individual aggrandisement, at the expense of the interests of the public and the profession in general."

4. Proposed by Mr. W. JACKSON, and seconded by Mr. E. GILLOTT.

"That the present constitution of the ROYAL COLLEGE OF SURGEONS IN LONDON, by which the self-election, self-perpetuation, and irresponsibility of its managing Council is permitted;—the HOSPITAL APPOINTMENTS, moreover, and LECTURESHIPS, which the members of this Council hold, and their power of rejecting any educational testimonials from other teachers, are circumstances totally irreconcilable with the due advancement of the profession, and the rights of every member of the College."

5. Proposed by Mr. WALKER, and seconded by J. F. WRIGHT.

"That, it is utterly derogatory to the character and dignity of the profession for the regulation of medical practice and education to be in the hands of an avowedly TRADING COMPANY."

6. Proposed by Mr. GREEN, and seconded by Mr. K. WILSON.

"That, in the opinion of this meeting, the entire system of MEDICAL EDUCATION and APPRENTICESHIPS, as well as that of LICENSING practitioners, urgently demands revision. The present mode of licensing by various distinct bodies, with professedly distinct views, and yet all for a similar purpose, as for example by the Universities of Oxford and Cambridge, by the Royal Colleges of Physicians and Surgeons, and by the Company of Apothecaries in England and Wales, and by various other colleges and faculties in Scotland and Ireland, is not only irrational in itself, but mischievous in its effects, and is especially grievous to the members of the profession, inasmuch as certain licentiates claim, exclusively, offices, privileges, and distinctions, with their attendant honours and emoluments, to which they have no reasonable pretension or right beyond the rest of their medical brethren."

7. Proposed by C. F. FAVELL, M.D., and seconded by Mr. TURTON.

"That, since it is impossible for all these separate bodies, possessing distinct and separate interests, and regarding each other frequently with jealousy, and even disrespect, cordially to unite and cooperate in forwarding the public good and advancement of the profession, this meeting considers that ONE "FACULTY" OR "ACADEMY OF MEDICINE," ALONE, SHOULD BE ESTABLISHED IN EACH OF THE THREE CAPITALS OF THESE REALMS, for the purpose of regulating medical practice and education, which it is advisable to reduce to one uniform standard throughout the empire."

8. Proposed by G. C. HOLLAND, M.D. and seconded by Mr. E. THOMPSON.

"Deeply impressed with the importance of the MEDICAL CHARITIES of this country, in reference to science and humanity, and viewing the exclusive system in some, and the abuses in all, relative to the election of medical officers, this meeting is of opinion that all such ELECTIONS should take place by PUBLIC COMPETITION before a duly-constituted medical tribunal; and, further, that, as in other countries, the general medical management of such charities, in all matters touching the promotion

of medical science and education, should be UNDER THE DIRECTION OF THE AFORESAID FACULTY OF MEDICINE, subject to the control of the legislature, in order to their being rendered as extensively useful as possible to the student, the profession, and the public at large."

9. Proposed by Mr. J. F. WRIGHT, and seconded by Mr. RICHARDSON.

"That a PETITION embracing the substance of the foregoing resolutions, and also praying for a PALIAMENTARY COMMITTEE to inquire into the general state of the profession throughout the United Kingdom, be drawn up for presentation to the HOUSE OF COMMONS."

10. Proposed by Mr. TURTON, and seconded by H. P. HARWOOD, M.D.

"That this meeting does hereby appeal to ALL MEMBERS OF THE PROFESSION, generally, and urgently calls upon them to come forward with promptness to aid by every means in their power the promotion of a GRAND NATIONAL MEDICAL REFORM worthy of themselves and of the country to which they belong."

To the Editor of THE LANCET.

Sir,—I have great pleasure in forwarding you the preceding resolutions, and in recording the unanimous feeling with which they were passed. There was not a dissentient voice on this occasion, and it remains only for the profession generally to come forward and express their sentiments thus unitedly and firmly, in order to the obtaining of that reform which the present state of things so urgently calls for. I am, Sir, &c.,

CORDEN THOMPSON.

THE LANCET.

London, Saturday, December 7, 1833.

AT length, after ten years of anxious discussion, it is acknowledged that the graduate of a Scotch university should enjoy the same rights in London as in Edinburgh; and that the graduate of the University of Dublin in either of those places should have the same privileges as in his own country. Any other order of things, having an invidious distinction for its basis, must only tend to perpetuate national animosities, and disgrace the professors of medical science.

The example of liberality should not be wanting in a profession, the great object of which is the security of the welfare of mankind. Instead of restrictions, then, we would substitute *equality of rights* for medical practitioners in all parts of the British dominions. Having proved by one competent test, viz. a public examination, that they had received a sufficient education, the graduates of the several Faculties or national Colleges should enjoy uniformity of privilege in exercising the duties of their profession, and thus let their talents, and the use which they can afterwards make of them, be their recommendations to preferment and patronage.

Uniformity of education and equality of rights, therefore, should be the great objects of attainment in any change which may be made in the state of medical affairs in these countries; without them we see not how the absurdities of the present system can be effectually removed. But then it is contended that there exist many obstacles to the accomplishment of those desirable objects. Thus, the establishment of a uniform system of education suggests the discussion of the question how that uniformity is to be effected where there are so many private interests involved in the change, and so many public bodies to be brought to agree on this subject. There can be no doubt that this is a point of much delicacy, if not of difficulty, and one requiring no small share of judgment in its management. Yet it is one of those questions the difficulties of which appear rather to diminish than increase by an attentive consideration of the subject.

Let us first, then, examine the question with reference to the Universities. What, we may inquire, is there in the constitution of those bodies which should prevent them from adopting a uniform system of

instruction? What is there, in short, in the nature of those bodies which should prevent them from forming parts of *one great system*, and at the same time from being all obedient to *one general law?* The advocates of "things as they are" will doubtless reply that such a scheme is "impossible;" that the charters, the statutes, the by-laws and regulations of those bodies, are essentially different, and cannot be altered without a violation of faith, and the adoption of a "precedent" dangerous to the other establishments of the state. With every respect for the sacredness (if we may use such a term) of "ancient laws and charters," we cannot suppose that any rational being would preserve the power and integrity of particular legal statutes, if the good of society required their abrogation. With those individuals who adhere to the inviolability of "ancient laws," it is, we presume, unnecessary to hold any conference; the number of such musty-brained antiquarians must indeed be small, and their common-sense in proportion to the paucity of their numbers. It should be always recollected that Parliament is paramount when the necessities of society require the repeal of old, or the institution of new laws. With respect, therefore, to the justice and practicability of an arrangement of this kind, we can discover no valid objection—no substantial obstacle.

Having shown the evils which result from the discrepancies of the present system, and the advantages which would arise from one of uniformity, we have only to add, that it is in the power of the Legislature to remove the former and to secure the latter. Suppose, then, that an Act were really passed for equalising the system of education in all our universities and public schools, and for enforcing one plan of examination in the three Faculties of England, Ireland, and Scotland, in what respect we ask would it affect the *private interests* of the present *professors of medicine*, in those public schools and universities? Such an enactment would not send one student more to Oxford, or Cambridge, or diminish in all probability the classes of London, Edinburgh, and Dublin. Whatever change might take place, would, at any rate, be gradual, and depend on causes totally different from the influences of Acts of Parliament.

There is, however, another question naturally resulting from the consideration of the one which we have been discussing, and that is, whether the medical schools of the universities should be separated from those institutions, and be placed on a distinct foundation. Hitherto the medical schools of universities have been in a great measure under the control of boards, senates, and patrons; men, in fact, who understand little about the wants of the profession, and who have little interest in its advancement. Now it becomes a question whether this connexion of medicine with the other departments of our universities, or whether such a system of government as has been just pointed out, is advantageous to science, or compatible with the simplicity of the scheme of reform which proposes the recognition of three separate yet strictly harmonizing FACULTIES OF MEDICINE. We are inclined to the opinion that such a separation is at least desirable, if it be not absolutely indispensable.

It can indeed be shown, that the connexion of medicine with literary and theological establishments has materially interfered with the cultivation of this useful science, and that a similar disastrous result will mark the continuance of such an injudicious connexion.

At a particular era of our history, this union of medicine with other academic pursuits might have been justifiable and even serviceable; but since that state of things has passed away, the expediency of

such an alliance has also disappeared along with it. Now that medicine has so far expanded beyond its former limits—when it may be said to exceed all other pursuits in the variety and importance of its objects—it is time, we think, it should be governed by those individuals by whom it is cultivated and understood. Medicine has outgrown the secondary place to which it was assigned by its early patrons, and no longer requires the aid of such lukewarm protectors. Whether we consider its utility to society, or the number and character of medical practitioners, we must conclude that the medical body is entitled to the right of *self-government*, and, consequently, to an independent, separate, constitution. In fact, we know not how a *thorough reformation* of medical affairs can be effected without this exaltation of the members of the medical profession into a strictly INDEPENDENT FACULTY. There is no difficulty in the attainment of this vastly important desideratum, if we except the antiquated cabal concerning the *inviolability* of *charters* and of *established corporate rights*,—a species of sophistry which is now, thanks to the increased and increasing knowledge of the age, thoroughly understood and despised.

Since the foregoing remarks were committed to paper, we have been furnished with a copy of the resolutions which were adopted on Monday last, at a general meeting of the medical practitioners residing in Sheffield and its vicinity. These resolutions are admirable, and prove beyond dispute, that the physicians and surgeons of Sheffield are thoroughly conversant with the important subject which they have just, but not for the first time, discussed. Similar meetings will, doubtless, be immediately held throughout the three great departments of these dominions: it is to be hoped, that the object sought to be obtained by resolution the 7th, will everywhere be kept steadily in view,—The establishment of THREE FACULTIES OF MEDICINE, governed by ONE UNIFORM CODE OF LAWS.

THE discussion of the question of medical reform was resumed by the members of the *Westminster Medical Society* on Saturday evening last, and after a debate which occupied two hours, during which time only two resolutions were passed, it was resolved that the further consideration of the subject should be postponed until this evening, Saturday, December 7th. At the conclusion of the discussion we shall publish a condensed report of the whole proceedings, but we are bound to state that thus far the speeches contain nothing that is new to the readers of THE LANCET, if, indeed, we omit the eulogies bestowed by one or two of the debaters on the gentry of Rhuburb Hall.

REPLY TO "AN INQUIRY."

To the Editor of THE LANCET.

SIR,—Having, in conjunction with Baron Heurteloup, attended Mr. Stone since his arrival in London on the 17th ult., I beg to inform you, that your Correspondent signing himself "A Surgeon in the neighbourhood of Ashwell," has been most erroneously informed in every important particular.

The case being a private one, I am neither authorised by the patient, nor disposed, to say more, than that he never wrote the letter quoted by your Correspondent, nor anything like it.

Mr. Stone's family are acquainted with his situation, and if your Correspondent be a surgeon (which I rather doubt from his speaking so positively about *five* stones, and one a very large one, whereas *one* only, exists) he may address a letter either to the Baron Heurteloup, 18, Hollesstreet, Cavendish-square, or to myself, and he will receive a satisfactory reply.

In conclusion, permit me to remark that I have this day seen Mr. Stone in good general health, anxiously wishing for a repetition of the operation (lithotrity), which at the date of your Correspondent's letter had been *twice, not six* times, performed. I remain, Sir,

Your most obedient Servant,

GEORGE BEAMAN.

32, King-street, Covent-garden,
Nov. 30, 1833.

PAROCHIAL MEDICAL ATTENDANCE AT HORSHAM.

To the Editor of THE LANCET.

SIR,—In THE LANCET of the 9th of November I observed an article, headed "Inadequate Medical Remuneration.—(From a Correspondent.)" This communication purported to give a correct report of the late proceedings at Horsham, with regard to the appointment of a medical man to the care of the sick poor of that parish.

When your correspondent said, "The practitioners of the town were, as honourable men, fired with indignation at the proposition, and took occasion to declare, that they would not submit to the vile and detestable system of farming the sick poor by tenders," did he forget that two of these "honourable men" had not merely submitted to "the detestable system," as to a grievous and wearisome burden, of which they could not rid themselves; that the holy *fire of "honourable" indignation* that has been smouldering for so many years, has never till now burst into a flame, but that since the year 1823 they had hugged their chains, had delivered themselves up as ready and willing captives, and satisfied their hunger with the husks, the wages of their servitude; that in the year 1823, it was willingly embraced by one of these "honourable men," (midwifery included) for the sum of 65*l.*? During the years 1824, 1825, and 1826, it was continued at the same sum. In 1827, the salary was raised to 75*l.*, two tenders having been given in. In May, 1828, two tenders were presented, offering to take the medical charge of the parish, the one for 70*l.* the other for 75*l.*, the latter was accepted. In 1829, three practitioners tendered their services, one at 55*l.*, the surgeon who had undertaken the charge for several preceding years for sixty guineas. Up to this period, the attendance on midwifery cases was not included in any contract, nor indeed had any one offered to do this great wickedness but in the year 1830, "Tell it not in Gath, publish it not in the streets of Ascalon," that in that year, by a tender bearing date June 26th, a very "honourable man" proposed attending all medical and surgical and all midwifery cases, to find all necessary medicines, vaccination, &c. for the sum of (will you believe it?) fifty guineas, or, exclusive of midwifery, forty-five guineas. The latter offer was accepted; he "subscribed to the terms, and was installed in office;" and, in the following year, declares, "with unfeigned gratification," that he has performed the duties of his office "with credit to himself," that he has healed the sick, "570 in number," and "hoping for their patronage" (the select vestry's) during the ensuing year, he proposes to contract for 52*l.*, which was granted, and in 1832 the salary was raised to 70*l.* Of the proceedings in the present year, you have given an account in THE LANCET of the 9th instant, save and except that your correspondent did not intrude on your notice the fact that three of these "honourable men" sent *tenders for "farming the sick-poor"* (midwifery being excluded), and that one of these "honourable men" would have acceded to the terms of the vestry, had he not been upbraided with his breach of compact by a brother practitioner. Thus far have I gone into the facts, that the conduct of those you have lauded, and those you have blamed, may be placed in a proper light. Now let me show your correspondent's statement to be as utterly false with regard to the patients, as I have proved it to be with regard to the practitioners. The entire population of Horsham amounts to 5160; is it to be believed for one moment that 2000 of these are paupers, or that in a population of 2000 paupers (and it is by no means a barren spot) the average number of midwifery cases is but 30 in the year? A fact of which your correspondent should be well aware. I am, Sir, yours truly,

A RESPONDENT.

Horsham, Nov. 15, 1833.*

UNION IN AID OF MEDICAL REFORM.

To the Editor of THE LANCET.

SIR,—The zeal and ability with which you continue to support the cause of medical reform should protect you from the interruption of all idle interference in the progress of your worthy endeavours. I hope you will accept the expression of this feeling in lieu of a better apology for the present intrusion on your valuable time. The *Westminster Medical Society*, I perceive, has caught the spirit of improvement which has so often influenced the writings in your journal; and if the *other medical associations* do but follow up with vigour this example, a thorough reform of medical abuses cannot fail to reward your powerful exertions. But permit me, Sir, to suggest the absolute necessity of

* The delay in the insertion of this letter arose from its want of authentication at the time it was received. The name of the writer has since been forwarded to us.—ED. L.

active union. An appeal to the Legislature should express the general opinion of the aggrieved members of the profession. It should embody the *same* resolution from every medical society,—not only of the metropolis, but the whole country,—and not only from these institutions, but, where such do not exist, from special meetings of the members of our outraged faculty. To promote this union, I know no means so likely to prove effectual as a strong recommendation from THE LANCET at this critical moment,—the proceedings of the Westminster Society forming a basis for action. I remain, Sir, your obedient servant, and a devoted friend to a

THOROUGH REFORMATION.

Dec. 2, 1833.

WESTMINSTER HOSPITAL.

MALIGNANT FUNGUS OF THE NECK—EXPLORATORY INCISIONS.

Sept. 21, 1833. Sir ANTHONY CARLISLE summoned his colleagues into the theatre, in order to have a consultation as to the propriety of opening a tumour of doubtful character. This was situated on the left side of the patient's neck, it involved the entire parotid gland, and was adherent to the adjacent angle of the jaw. Sir ANTHONY said, he thought the tumour was of the *carbuncle* kind. The following is a brief statement of the case:—

Jan Daves, anno ætatis suæ 70, a Hanoverian, was admitted on the 17th of Sept. inst. He is an emaciated subject, of middle stature, and dark complexion. He has resided for thirty years in London, where he has been ever employed in a sugar-baking establishment. He had excellent health till the first appearance of this tumour, which occurred about six months ago. He first perceived, under the angle of his jaw, a small hard lump, about the size of a hazel nut, moveable in the integument. At first this tumour was indolent, and not at all painful, and the patient was consequently very careless, but of late it has grown very rapidly, and has become extremely painful. The tumour is now of the size of the largest codlin apple, and has an unequal mammillated summit. It extends from the angle of the jaw and the mastoid process, three parts down the neck, and passes over the sterno-cleido-mastoideus muscle, the skin covering it is injected with scarlet vessels, and is, generally, of a purplish hue. The most projecting points of the mass are much inflamed, and, when touched, give a fluctuating sensation, evincing the presence of subjacent fluid. One point is deprived of its cuticle; several large blue veins are seen ramifying over the tumour. The base of the tumour is hard, and its roots extend under the ramus of the jaw, behind the angle, and as far as the mastoid process. The tumour is now firmly fixed, and perfectly immoveable. It is almost insensible to the touch, but the man complains of almost constant lancinating pains in the interior of it, and darting thence into the head; he has occasional vertigo. The pain occasionally intermits, but these intermissions are very brief; his sleep is very much interrupted by his sufferings; he has now and then a trifling cough; his appetite is good; his pulse small, hard, and jerking.

Sir ANTHONY, after a careful examination, declared it as his opinion, that the tumour was malignant; he felt a difficulty in giving it an appropriate name, for the classifications of these growths hitherto formed, were imperfect and fallacious. Mr. WHITE said that, in his opinion, the tumour approached nearest to the species called medullary sarcoma, but the hardness of its basis resembled the stony character of scirrhus. Mr. LYNN thought that the system now in vogue, of christening tumours from their structure and consistence, was a bad one, there were pathological circumstances enough connected with these funguses on which to found a more scientific arrangement. On this occasion, however, he would not stand sponsor, and the tumour might be arraigned in the "Court of Surgery," by a description of the individual, and without reference to its relationships.

Sir ANTHONY and Mr. WHITE came to the conclusion that the fluid which evidently existed in the apices of the tumour should be let out, but Mr. LYNN declared such meddling could only do harm. The opinion of the majority prevailed, and an ounce of pus was emancipated from one of the mammillæ, and a dram or two of pellucid lymph from another; the patient thought himself a little relieved by this process. This relief, however, can only be ephemeral, for the constitution of the patient is evidently sympathising with the local evil. Mr. LYNN considers the idea of excision ought not for a moment to be entertained. The poor man is ordered by SIR ANTHONY to remain in bed; to have a linseed-meal poultice mixed up with artificial sea-water continually applied; alkaline aperients and a light nutritive diet are also prescribed.

Sept. 25. The apices of the tumour from which pus and lymph were evacuated, have begun to ulcerate, and the irritation of the patient has evidently augmented.

INTRA-CAPSULAR FRACTURE OF THE CERVIX FEMORIS, CURED BY AMESBURY'S APPARATUS.

Joshua Whitney, a powerful, gaunt, and tall old man, about sixty-six years of age, admitted 29th of June, 1833, under Mr. WHITE, with fracture of the neck of the femur. Whilst crossing from Richmond Terrace to Downing Street, he was knocked down and kicked by a horse. When brought into the hospital, immediately after the accident, he was unable to move the right thigh; he had acute pain when it was attempted by the surgeon to move it. He had eversion of the foot, and shortening of the limb by an inch and a half. By fixing the pelvis, and making extension, the limb was brought down to its due length. He had no tumour on the dorsum ilii, over the pubis, or on the obturator foramen. The trochanter major could be felt at its due distance from the anterior superior spinous process of the ilium, and corresponding with its fellow. The thigh could be bent on the pelvis by the examinator, but not by the patient himself. On rotating the limb, a crepitus is perceived at the hip. He is placed on his back, and on a double-inclined plane.

July 2. Swelling and pain have occurred, and are combated by cold lotions, aperients, and perfect quietude.

4. Inflammation reduced. He is placed on Amesbury's fracture bed.

6. He is easy in the limb, and feels generally comfortable.

Aug. 27. He is going on well. The limb feels strong.

31. After nine weeks (sixty-three days) of restricted recumbency, he is liberated from the bed; he can bend and extend his limb, but he cannot extend the knee fully, the joint being stiff.

Sept. 2. He feels weak on the plane bed, he says he is not "asy to it yet."

9. He is acquiring more power in his limb.

14. He has regained the command of his knee. To-day Mr. WHITE suggested to him the propriety of bequeathing his body to the surgeons, since he had been such a gainer by surgical means. "Faith, and by my credit, I'll do so, your Honour," replied the patient. Sir ANTHONY CARLISLE said, that one of his private patients, whom he had cured of an intra-capsular fracture of the cervix, had left him the limb as a legacy, but his executors would not consent to his (Sir A. C.) having it, lest it should interfere with the integrity of the patient's resurrection.

17. He walks a little with crutches.

21. He walks with crutches yet, but with more freedom.

Oct. 1. Discharged convalescent.

LUMBAR ABSCESS CURED BY INCISION BARK AND SODA, AND SODAIC PURGES.

John Styles, ætat. 22, a helper in livery-stables, came in 17th September, 1833, under Sir ANTHONY CARLISLE, with a supposed lumbar abscess. He is of a leucophlegmatic temperament, of moderate stature, and thin. For six months he has felt a gradually-increasing disinclination and inability to work, with general uneasiness. In walking he experienced pain in his knees. Four months ago, dull heavy pains occurred in his back, constant, but varying in severity, and most acute when recumbent in bed. Two months since a swelling appeared on the right side of the loins, smooth, uniform, and hemispherical. The skin is not discoloured. The tumour continued small till ten days ago, when, after a ride to Dover, it began rapidly to grow in size. At the same time his general debility increased. His appetite is now greater than usual. He sleeps well; he has not much pain; tongue clean; bowels of a costive habit. Pulse 76, small and feeble.

20. The tumour is large and rather prominent and oval, situated over the right sacro-lumbalis in the loin. Fluctuation is evident to the fingers. Impulse of coughing very plain in the tumour, especially over the last rib. He complains of soreness when the ribs are pressed upon, but of none when the vertebræ are struck. He has slight lateral curvature of spine.

21. Sir ANTHONY CARLISLE considers the abscess is not in a fit state to be opened, and orders soda, in free and frequent doses, to counteract the "peccant acidity" of the patient's constitution.

28 Tumour much larger, but not yet considered by Sir ANTHONY and Mr. WHITE fit to be opened. The soda is continued; and, according to Mr. WHITE's recommendation, a *Cummin-seed Plaster* is applied over the tumour.

October 10. The abscess has been opened by Sir ANTHONY, by a plain incision, the pus is laudable, and the extent of the abscess does not appear to be very great. Bark and soda are given twice a day; and the aperient *Sack*, described in a former LANCET, is occasionally administered.

Nov. 16. The quantity of pus gradually diminished; wound is now nearly closed. The man's health and appetite very good, having friends in the country, residing near the sea-side, and in good circumstances, he is permitted to visit them, and is accordingly noted as discharged. The cummin-seed plaster was intended as a repellant, but it produced no appreciable effect, merely irritating the skin and inconveniencing the patient.

CANCER MAMMÆ. — AMPUTATION. — MR. LYNN'S LAST OPERATION.

Mary Meek, ætat. 47, attended at the desire of Mr. LYNN, for a consultation. The facts elicited were the following:— Married 22 years, has no children, is of a nervous irritable temperament, tall in stature, of a full habit, and of sallow complexion. She has resided many years in the salubrious neighbourhood of Clapham. Two years ago she received a blow on the right breast from a door slamming to, by an impulse of the wind; the breast was struck by the ring of the key, which happened to be in the lock. A tumour shortly afterwards appeared in the bruised part, and remained stationary until within these two months, since when it has rapidly increased in size. She had been under medical treatment for some time, without benefit, and her professional attendant recommended her to Mr. LYNN, who was disposed to think that amputation afforded the only chance of recovery.

There is a tumour in the right breast larger than an ordinary fist, of stony hardness, unattached, except to the skin; sensible to the touch; the nipple is retracted; ulceration is commencing; the veins are enlarged in the neighbourhood; there is lancinating pain; no tumour can be detected in the axilla, or any other adjacent part; no disease of womb exists, or of other viscus. Sir ANTHONY CARLISLE, in dissenting from the proposed measure of amputation, stated that Mrs. Gordon, an incurable patient of this hospital, had lain *thirty-two years* with FIVE *cancerous sores*, and at last died of old age. She was only lded occasionally to relieve the pain.

To-day the patient was merely ordered to take the Lynn-pill occasionally.

Afterwards she was seen by Mr. WHITE, who declared himself in favour of an operation, because of the rapidity with which the tumour had grown, and the favourable circumstance of its complete insulation from the surrounding textures.

Sept. 14. In consequence of Mr. WHITE's declaration, the amputation of the breast was decided upon, and the woman attended to-day for the purpose. It was generally reported that this amputation was designed to be Mr. LYNN's final operation. Mr. WHITE made a point of attending to assist his aged colleague, in this his last effort, because Mr. LYNN had assisted him thirty years ago in his maiden operation, which was also, curiously enough, an amputation of the breast. The double elliptical incision was made, and the scirrhus was removed in four minutes. Three ligatures were applied to bleeding arteries, and the lips of the wound were drawn together by means of straps long enough to reach over both shoulders. This ensured a steady and regular co-aptation of the surfaces of the wound. A little wine was given after the dressing.

15. The patient had a pretty good night, and is tolerably free from pain; bandage rather tight, restricting the movements of the chest; the pulse small but not feeble; slight pain of loins; bowels not open. To have saline aperient medicine.

17. Bowels open; little appetite; she is not restless; the reaction is slight; pulse very small and scarcely to be felt; the wound examined and dressed; adhesion commenced at each end, suppuration commencing in the centre.

To assist the feebleness of the re-action Mr. FINCH administered cordial medicines. His plan had the desired effect, for the pulse improved in character and force. Mr. LYNN observed that he did not much approve of stimulation, for he was of John Hunter's opinion, that the human constitution did not bear well the simultaneous application of two stimuli; for example, in the present case, that of the knife and of cordial medicine. Animal food he deprecated after operations, even in the diluted and dissipated form of broth or jelly. He had known serious mischief arise from the administration of weak beef tea. The best drink for this patient was apple tea, and the best medicine "my pill" and Epsom salts.

25. The patient's colour is restored, the wound is healing kindly, adhesion having taken place to a considerable extent; the centre is filling up with healthy granulation. Pulse 72, soft; tongue clean; bowels open.

30. Discharged convalescent.

FRACTURE OF ILIUM.—RECOVERY.

Patrick Morrison, ætatis 36, admitted 4th September 1833, with a fracture of the left ilium. On admission he had great tumefaction, and a careful examination demonstrated the existence of a diagonal fracture of the wing of the ilium, from the posterior third of the labrum, extending forwards as far as below the anterior superior spinous process. This injury was occasioned by the fall of a stone *three tons* in weight. In a few days after the receipt of the injury, the patient had difficulty in expelling his fæces, and complete retention of urine. The catheter was regularly used. He has been laid on his back, with his thighs raised, and now (Sept. 30th) he is rapidly convalescing, the bone apparently in perfect reunion.

FISTULA IN PERINEO.—OPERATION.

Thomas Francis, 70 years old, residing at Pimlico, was admitted into Mark's Ward, under Mr. WHITE, August 27, 1833, with fistula in perineo. He never had any difficulty in making water, and it flows freely now. He received a blow in the perineum whilst bathing. This was followed by tumefaction, and was treated with leeches and fomentations. An abscess was formed, which burst in four or five days, and urine was found to dribble through the opening. A bougie was passed, and no stricture could be detected. A probe introduced through the opening came in contact with a staff in the urethra. The fistulous opening is a little to the left side of the raphe.

31. A gum-elastic catheter No. 8 was passed and secured *in situ*, and plugged. Aperient medicine ordered occasionally.

Sept. 1. Some of the urine has passed through the catheter, some beside it, and some through the fistula. A longer catheter of the same diameter introduced.

3. Urine still passes by the side of the catheter and through the fistula. A still longer catheter introduced.

5. Urine still escapes in small quantity outside the catheter.

7. More of the urine passes through the catheter, very little through the perineum.

14. To-day, the fistula appeared to Mr. WHITE as open as on admittance, and considerably indurated. If in a week or two it should not amend, he would lay open the urethra.

18. To-day, all the urine passes through the bougie.

21. No appearance of healing being extant, Mr. WHITE determined to operate. The man was accordingly brought into the theatre, and placed in the position for lithotomy. An incision was made along the raphe, for about an inch and a half, as low as the centrum tendinosum. When the finger was passed into the wound, the urethra was found completely insulated from the surrounding parts, all the adjacent cellular tissue being destroyed, and the membranous part of the urethra opened by an ulcer. A transverse division of the fistulous bag was now made, and that part of the urethra cut into to the length of half an inch. Mr. WHITE said the parts surrounding the urethra were of scirrhous hardness, and the bulb destroyed. A catheter was introduced, the wound dressed, and the man put to bed.

22. The patient had a tolerable night. The instrument slipped out, not having been secured. He has little pain, and has passed his water through the instrument.

23. No pain.

26. Healthy granulations are springing up from the bottom of the wound. A tent is introduced into the wound, purulent discharge healthy. A very little urine escapes through the perineum.

28. The patient was seen by Mr. WHITE to-day, who thinks the surfaces indolent; ordered a dressing of balsam of Peru and yolk of egg.

October 15. The surfaces still indolent, and becoming rather callous; the urine comes through the perineal wound. The patient's health is still tolerably good.

DOCUMENTS SIGNED ON THE ADMISSION OF PUPILS TO THE LONDON HOSPITAL.

"CHARGE to Mr. , upon his admission as a Pupil, on the day of 18 , for the period of months.

"You are recommended by , one of the Surgeons to this Hospital, as qualified by education to be admitted a Pupil.

"I admit you accordingly: and enjoin you—to be attentive and obedient to the directions of each and all of the Surgeons—to be diligent in the acquirement of knowledge, and in every duty of your station—to treat the patients with tenderness and humanity—to conform strictly to the laws and regulations of the Hospital,—and, upon all occasions, to preserve the utmost decorum and propriety of behaviour.

"Upon your observance of these injunctions, you will receive at the expiration of your term a Certificate, from the Committee and the Surgeons, of your regular attendance and good conduct.

"But, in case of your expulsion for any cause, such Certificate will, consequently, be withholden: and you will forfeit the whole of the fee of your admission.

, Chairman of the Committee.'.

"LONDON HOSPITAL: the day of 18 .

"I hereby promise to act conformably to the CHARGE I have this day received: and, in case of my expulsion, I consent and agree to forfeit the whole of the fee of my admission.

"Pupil, for the period of months."

GUY'S HOSPITAL.

REMARKS ON THE ACCOUNT IN THE "STUDENTS NUMBER" OF THE LANCET.

To the Editor of THE LANCET.

SIR,—Having been a regular subscriber to THE LANCET from its commencement, I flatter myself you will not refuse to notice the few remarks I wish to make. I must say I felt much surprised in your late number, called "The Students Number," to find that many of your assertions respecting Guy's Hospital were, to speak plainly, *untrue*, *illiberal*, and *unjust*. Having been a pupil at Guy's, and well aware of the great advantages it possesses, I cannot but think that the remarks you have made must have their origin in a spirit of *partiality* very different from what I should have expected from the "*Editor of* THE LANCET." You seem, Sir, entirely to forget that by thus holding up Guy's Hospital as a school where no useful professional knowledge is to be gained, you are doing great injury to those who are now practising, or about to commence practice, after having studied at that hospital. Many unthinking persons will say, after reading your "Advice to Students," "I shall not employ Mr. ——, as he was at Guy's Hospital, and, therefore, cannot have acquired the necessary information." I therefore beg to assert from my own personal knowledge, that students, at Guy's Hospital, have far greater opportunities of acquiring a good education than at almost any hospital in London, and that the lecturers, some of whom are the very first in the profession, are remarkable for their great kindness and unremitting attention to their pupils.

Now, Sir, I trust to that impartiality which has so long been your boast to give insertion to this note, which is not dictated by any other feeling than that of regret at the incorrectness of your assertion, arising, I hope, from an imperfect knowledge of the facts; and with sincere respect for your universally-acknowledged talents, I beg to subscribe myself, your constant reader,

A LATE PUPIL OF GUY'S HOSPITAL

[As the complaint exhibited in the above letter was expressed in general terms, we requested that our correspondent would notice *particular* errors, when we were favoured with the following communication.]

To the Editor of THE LANCET.

Sir,—In your last number, I hoped to have found the communication I forwarded to you respecting the seeming prejudice you manifest against Guy's Hospital, and the ill effects it would produce among those students who have been educated there. Instead of allowing it to appear, you say, that if I can point out any error in your remarks, it shall be inserted I beg leave, therefore, to say generally, that your report is erroneous from beginning to end, erroneous in the assertion, that there are no clinical lectures, with the advantage of clinical wards, (under excellent regulations), erroneous in the implied irregularity of the physicians and surgeons, unfair in the total omission of any of the complimentary remarks on the different lecturers, as observed in the reports of the other schools, and untrue with respect to the asserted secrecy of their proceedings. You entirely pass over the names of Messrs. Cock and Hilton, two of the best demonstrators in London, and to whose kind instructions and unremitting attention every pupil in the class can give testimony; you omit to mention the acknowledged fact, of Mr. B. Cooper being one of the greatest favourites with his class of any of the anatomical lecturers; you are silent as to the great merits and uniform kindness of Dr. Addison, and to the estimable qualities of the other numerous lecturers. No mention is made of the great number of patients admitted into this hospital affording the student an opportunity of seeing every species of disease, or of the thousands who are attended as out-patients, nor is there a word respecting the Physical Society which holds its meeting there. In short, Sir, to be plain, I must say your report was not such as I should have expected from an impartial writer, and am sorry to say has been taken notice of by many of your readers as displaying a great want of that candour and fairness which have generally distinguished you. Should you do me the favour of giving impartial insertion to this or the last week's note, you will confer a great obligation on

Your constant reader,
A LATE PUPIL OF GUY'S HOSPITAL.

*** We offer Guy's hospital the benefit of the publication of these letters, and the officers of that establishment shall shortly derive the benefit of our comments thereon. From want of space we are again obliged to exclude from this Number an explanatory contradiction of their contents.—ED. L.

Baron Dupuytren, whose illness we announced in last week's Lancet, has so far recovered as to be able to commence a journey to Italy, where he intends to pass the winter, but the right side of his face is paralyzed, and his friends dread much the occurrence of hemiplegia.

CORRESPONDENTS.

The communication of *Dr.* ——, Edinburgh, has been received. In fact, it reached us at the beginning of last week, but as we knew that it had already appeared in another journal, it was laid aside, that a preference might be given to those articles which are sent exclusively to The Lancet. A writer, without doubt, has a right to transmit his papers to one or to several periodicals, and the editors of those publications have an equal right to give a preference to those articles which are sent exclusively to their own publications. The paper of our early and esteemed correspondent, Dr. Alexander, was printed, we find, in one of the periodicals of last week, and this circumstance would have prevented its publication in The Lancet for some time, had it not been forwarded by us to the printer, and, in a previous Number, promised insertion. This announcement is due to those valued correspondents whose papers have been excluded from our pages for many weeks past from want of space, and, we can assure them, from that cause alone. Although we published a supplemental sheet with our last Number, we cannot find room this week for the lectures either of Sir C. Bell, Baron Dupuytren, Mr. Wardrop, or M. Lisfranc, the communications of a great number of correspondents, whose articles are marked for insertion, reviews, which we have prepared of many new works, or a large number of hospital reports which await a place in our pages. In addition to withholding these, we are obliged this week to seize the uplifted arm of the terrific *Castigator*, and thus actually interpose between crime and the administration of literary justice. As for secret correspondence and "intercepted letters," we have only had time to break the seals, and see that there are in our possession many curious addresses on very delicate subjects.

J. R. M.—Rice has been, and still continues to be, the food of millions, without producing cholera; but does it therefore follow that, in certain states of the grain, and under certain conditions of the atmosphere, that rice has not caused the death of cholera?

Mr. Parkinson.—In spite of all that can be said to the contrary, non-medical persons will continue to form opinions on medical subjects, although those opinions must, necessarily, be erroneous.

Owen Reardon.—Mr. Tucker, the governor, acknowledges that Reardon did complain to him, but Mr. T. says that this is the only complaint which has been made to him during the sixteen years he has subscribed to the Infirmary, although he has furnished "recommendations" to a hundred and fifty persons.

Mr. Aaron.—The names and titles in the list were inserted in The Lancet precisely as they were received by us, with the exception of attaching "Mr." to the name of each surgeon, instead of "Messrs." to the surgeons generally. The arrangement stands in the published copy as it did in the original. We do not feel authorised to state from whom the communication was received, but we cannot believe that Mr. Aaron will feel the slightest difficulty in ascertaining in Birmingham the name of our correspondent, who will, probably, when he observes this notice, at once communicate with Mr. A. on the subject.

A Subscriber.—The report shall appear, but in a condensed form.

A Subscriber.—We know that it is greatly required, but at present it would prove too great a labour for us to undertake.

The publication of such *anonymous* communications as the one forwarded by *E. W. G.* cannot produce any effect. Why does the writer object to the appearance of his name, when the purpose is to correct a flagrant abuse? At any rate the name of the writer should be furnished for our private information.

If *Delta* (Bartholomew's Hospital) will condense his statements into about one-eighth of the space occupied by the letter now before us, and furnish us with his name and address confidentially, we will give his allegations insertion.

Mr. V. is quite just in his complaint against the conduct of the practitioners in question,—that is, supposing that his statements are in every respect correct; but we cannot perceive that the publication of his letter would serve a useful purpose. Men who could act in the manner stated, are, for the most part, regardless of the opinions of their professional brethren. The first letter of Mr. V. was mislaid. Respecting the "placenta presentations," we can only say that such a case would involve two breaches of etiquette,—the first, so serious a one as to constitute an instance of *mala praxis*.

Mr. J. S. Hiley attributes the non-insertion of his paper to the right cause. A sufficient portion of the document, however, to make known his proposition, which if acted upon would we think prove useful to science, shall be inserted in the next Lancet. Should the object he contemplates not be accomplished, our pages shall be open to his occasional communications.

If *Medical* examines the back Nos. of The Lancet, he will find all the information he needs.

Erratum.—In the letter of Dr. Clanny, page 336, line 21, *for* state *read* condition.